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THE GROWTH OF CITIES IN MASSACHUSETTS.

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Massachusetts is no longer the Puritan Commonwealth. It is the Commonwealth of Cities. The same causes that have made the first title inapplicable have rendered the second appropriate. The changes which are in some respects revolutionary, yet entirely peaceful, have taken place within the memory of men still young.

In 1820 there were no cities in the State, and but two towns large enough to become cities under our present statutory requirements. These towns were Boston, with 43,298 inhabitants, and Salem, with 12,731. Both were commercial municipalities, and to their early settlement in favorable locations upon the seaboard their prominence was due. The population of Massachusetts was then 523,287, and the population of Boston and Salem together being 56,029, it will be seen that these places, each of which contained more than 12,000 inhabitants, the minimum limit of city population, comprised about 11 per cent of the population of the State. The remaining 89 per cent was distributed among 300 towns, very few of which contained 3,000 inhabitants.

The following table shows the population of cities in Massachusetts in 1890 and at five antecedent periods. The absence of figures in the column for any year indicates that the mu-

nicipality opposite the name of which the omission occurs was not then a city.

Cities.	Population of Cities existing in —					
	1840	1855	1865	1875	1885	1890
Boston	93,383	160,490	192,318	341,919	390,393	448,477
Charlestown	.....	21,700	26,399	.....	.....	.....
Roxbury	.....	18,469	28,426	.....	.....	.....
Worcester	.....	22,286	30,055	49,317	68,389	84,655
Lowell	20,796	37,554	30,990	49,688	64,107	77,696
Fall River	.....	12,680	17,481	45,340	56,870	74,398
Cambridge	.....	20,473	29,112	47,838	59,658	70,028
Lynn	.....	15,713	20,747	32,600	45,807	55,727
Lawrence	.....	16,114	21,698	34,916	38,862	44,654
Springfield	.....	13,788	22,035	31,053	37,575	44,179
New Bedford	.....	20,389	20,853	25,895	33,393	40,733
Somerville	.....	.....	.....	21,868	29,971	40,152
Holyoke	.....	.....	.....	16,260	27,895	35,637
Salem	15,082	20,934	21,189	25,958	28,090	30,801
Chelsea	.....	.....	14,403	20,737	25,709	27,909
Haverhill	.....	.....	.....	14,628	21,795	27,412
Brockton	.....	.....	.....	.....	20,783	27,294
Taunton	.....	.....	16,005	20,445	23,674	25,448
Gloucester	.....	.....	.....	16,754	21,703	24,651
Newton	.....	.....	.....	16,105	19,759	24,379
Malden	.....	.....	.....	.....	16,407	23,031
Fitchburg	.....	.....	.....	12,289	15,375	22,037
Waltham	.....	.....	.....	.....	14,609	18,707
Pittsfield	.....	.....	.....	.....	.....	17,281
Quincy	.....	.....	.....	.....	.....	16,723
Northampton	.....	.....	.....	.....	12,896	14,990
Chicopee	.....	.....	.....	.....	.....	14,050
Newburyport	.....	13,357	12,976	13,323	13,716	13,947
Marlborough	.....	.....	.....	.....	.....	13,805
Woburn	.....	.....	.....	.....	.....	13,499
Totals	129,261	393,947	504,687	836,932	1,087,496	1,372,300

The town ranking next to Salem in size was Nantucket, with its thriving fisheries, its population being 7,266. Other large towns on or near the seaboard were the following:—

Newburyport	6,852	Andover	3,889
Charlestown	6,591	Barnstable	3,824
Gloucester	6,384	Dorchester	3,684
Marblehead	5,630	Newbury	3,671
Middleborough	4,687	Dartmouth	3,636
Taunton	4,520	Danvers	3,616
Lynn	4,515	Scituate	3,305
Plymouth	4,348	Cambridge	3,295
Beverly	4,283	Haverhill	3,070
Roxbury	4,135	Rochester	3,034
New Bedford	3,947		

The largest town in Worcester county was Worcester, with 2,962 inhabitants; in Hampshire, Northampton, 2,854; in Hampden, Springfield, 3,914; in Berkshire, Sheffield, 2,476; and in Franklin; New Salem, 2,146, then nearly as large as Worcester, but now having a population of 832.

One who then looked over the State would have said that Nantucket, Marblehead, and Barnstable possessed possibilities of growth far superior to Worcester. Their excellent harbors would have been thought an advantage which no inland town could possibly overcome. Springfield indeed was upon a river, but Worcester was simply a town among the hills. Evidently Nantucket, Marblehead, and Barnstable shared with New Bedford, Salem, Gloucester, and Newburyport the promise of future greatness. The prophet who might have predicted that these were the nuclei of our largest cities would not have been without honor in his own country, but would have illustrated a recent definition of prophecy as "that which never becomes true." Worcester is now our second city, while the glories of Nantucket, Barnstable, and some of the other coast towns are in the past. But in 1820 neither the railroad nor the factory system had been perfected. Lowell and Lawrence were unborn. Fall River was a town of 1,504 inhabitants, and Holyoke was tillage land in the village of West Springfield.

Lowell was founded in 1826. In 1830 it had 6,474 inhabitants. The migration from the country toward the factory town had begun. Boston became a city in 1822; Salem and Lowell followed in 1836. The census of 1840 thus found three cities in Massachusetts, their aggregate population being 129,261, or 17.52 per cent of the total population of the State. Besides these, New Bedford had passed the twelve-thousand limit, but had not yet become incorporated. Fifteen years later, in 1855, the first decennial State census was taken. Thirteen cities now existed, the additions subsequent to 1840 being Charlestown, Roxbury, Cambridge, New Bedford, Fall River, Lawrence, Lynn, Newburyport, Springfield, and Wor-

cester. The population in cities had become 393,947, or 34.78 per cent of the total population, and Taunton, still under a town government, contained 13,750 inhabitants.

Taunton became a city in 1864. Chelsea had preceded it in 1857. At the close of the war, therefore, Massachusetts contained 15 cities, their aggregate population being 504,687, or 39.83 per cent of the population of the State. The cities at that time comprised every municipality containing a population in excess of 12,000. The population of Boston had become 192,318; of Lowell, 30,990; of Worcester, 30,055. No other city exceeded 30,000.

The era of expansion immediately followed, especially the expansion of manufactures. New enterprises were started, old ones enlarged. Immigration at once increased. The foreign born population which at the close of the war had been about 21 in the 100 became 10 years later nearly 26 in the 100. Still, in 1875, out of the total population, 59 in the 100 were of Massachusetts nativity.

Haverhill, Somerville, Fitchburg, Holyoke, Gloucester, and Newton were added to the list of cities between 1865 and 1875, and Charlestown and Roxbury were merged in Boston, which also took on the towns of Brighton, Dorchester, and West Roxbury.

In 1875, then, we find 19 cities, aggregating 836,933 inhabitants. The towns now had but 814,979. That is, 50.66 per cent of the population of the State was in the cities. The State had gained 30.38 per cent in the decade, but the gain upon territory within the city limits had been 44.06 per cent. To express it differently, 66.51 per cent of the gain in the State was made in the municipalities then under city government. Ten years later, in 1885, Brockton, Malden, Northampton, and Waltham had been added to the list of cities. The city population had become 1,087,496, a gain of 23.66 per cent upon the population of the same municipalities in 1875. The State had gained but 17.57 per cent, and nearly 72 per cent of its gain was made upon territory within

the city limits. The towns had gained but 10.64 per cent upon their population in 1875, and nearly 60 per cent of the total population was in the cities. The State, which 10 years before had found the majority of its inhabitants in urban instead of rural districts, now found the majority of foreign instead of native descent.

The proportion of foreign born was now about 27 in the 100, not greatly in excess of the proportion found in 1875, but only about 44 persons in the 100 were of native parentage, and the proportion was considerably less in some of the cities. How largely the cities have contributed to this change may be seen from the following table, representing conditions in 1885, but which have probably not changed since, except to increase the percentage of foreign born.

Cities.	Percentages of Foreign Born of Total Population 1885.	Percentages of Native Born of Total Population 1885.	Cities.	Percentages of Foreign Born of Total Population 1885.	Percentages of Native Born of Total Population 1885.
Boston	34.14	65.86	Gloucester	32.32	67.68
Worcester	29.51	70.49	Newton	27.81	72.19
Lowell	40.37	59.63	Malden	26.41	73.59
Fall River	49.16	50.84	Fitchburg	23.98	76.02
Cambridge	32.16	67.84	Waltham	27.47	72.53
Lynn	21.30	78.70	Pittsfield	23.32	76.68
Lawrence	43.99	56.01	Quincy	30.34	69.66
Springfield	23.79	76.21	Northampton	26.01	73.99
New Bedford	30.71	69.29	Chicopee	39.79	60.21
Somerville	25.02	74.98	Newburyport	19.00	81.00
Holyoke	49.79	50.21	Marlborough	26.17	73.83
Salem	27.06	72.94	Woburn	30.00	70.00
Chelsea	25.60	74.40			
Haverhill	19.09	80.91			
Brockton	19.40	80.60	The Cities (aggregate)	32.35	67.65
Taunton	27.75	72.25	The State (except cities)	27.13	72.87

This table shows that, considered in the aggregate, about 33 persons in the 100 in cities are of foreign birth, while in the towns only about 27 in the 100 are of foreign birth.

Since 1885 five cities have been incorporated, namely, Chicopee, Marlborough, Pittsfield, Quincy, and Woburn. In the census of 1890, therefore, 28 cities appear, their aggregate population being 1,372,300; a gain in these municipalities of 223,986, or nearly 20 per cent in five years. Of the population of the State, 61.29 per cent is now found in the cities.

The following table ranks these cities in the order of size, and presents a comparison of growth since 1865, upon the territory now within city limits: —

Cities.	Population.		Percentages of Increase in 1890 as compared with 1865.
	1865	1890	
Boston*	192,318	448,477	133.20
Worcester	30,055	84,655	181.67
Lowell	30,990	77,696	150.71
Fall River	17,481	74,398	325.59
Cambridge	29,112	70,028	140.55
Lynn	20,747	55,727	168.60
Lawrence	21,698	44,654	105.80
Springfield	22,035	44,179	100.49
New Bedford	20,853	40,733	95.33
Somerville	9,353	40,152	329.30
Holyoke	5,648	35,637	530.97
Salem	21,189	30,801	45.36
Chelsea	14,403	27,909	93.77
Haverhill	10,740	27,412	155.23
Brockton	6,332	27,294	331.05
Taunton	16,005	25,448	59.00
Gloucester	11,937	24,651	106.51
Newton	8,975	24,379	171.63
Malden	6,840	23,031	236.71
Fitchburg	8,118	22,037	171.46
Waltham	6,896	18,707	171.27
Pittsfield	9,676	17,281	78.60
Quincy	6,718	16,723	148.93
Northampton	7,925	14,990	89.15
Chicopee	7,577	14,050	85.43
Newburyport	12,976	13,947	7.48
Marlborough	7,164	13,805	92.70
Woburn	6,999	13,499	92.87
Totals (cities)	570,760	1,372,300	140.43
The State (except cities)	696,271	866,643	24.47

* Including Charlestown and Roxbury in 1865.

Besides its cities Massachusetts now contains two towns, North Adams and Brookline, each having a population in excess of 12,000, the city limit. We also have seven others, Medford, Everett, Weymouth, Beverly, Clinton, Hyde Park, and Peabody, already containing more than 10,000, and at their present rate of growth evidently soon to become cities. Now, if we group the cities and towns containing more than 10,000 inhabitants in classes so as to show certain ranges of population we find that the city of Boston, containing a population of 448,477, represents 0.28 per cent of the whole number of cities and towns, and contains 20.03 per cent of the entire population of the State. In this respect it remains about the same as in 1885 when it contained 20.10 per cent of the whole population. Outside of the city of Boston we find no city containing more than 90,000 persons. In the class ranging from 80,000 to 90,000 we find one city, Worcester, having a population of 84,655, or 3.78 per cent of the entire population of the State. In the class ranging from 70,000 to 80,000 there are three cities, the total population being 222,122, or 9.92 per cent of the entire population. There are no cities in which the population ranges from 60,000 to 70,000. In the class ranging from 50,000 to 60,000 there is one city, its population being 55,727, or 2.49 per cent of the entire population of the State. In the class ranging from 40,000 to 50,000 there are four cities, the total population being 169,718, or 7.58 per cent of the entire population of the State. In the class ranging from 30,000 to 40,000 are found two cities, the total population being 66,438, or 2.97 per cent of the entire population of the State. In the class ranging from 20,000 to 30,000 eight cities are found, the total population being 202,161, or 9.03 per cent of the entire population of the State. In the class ranging from 15,000 to 20,000 are found three cities and one town, containing 68,785 persons, or 3.07 per cent of the entire population of the State. In the class ranging from 10,000 to 15,000 are found five cities and eight towns, the total population being 157,003, or of 7.01 per cent of the entire population of the State.

The classes to which we have so far referred, namely, those ranging from 10,000 to 90,000, together with the city of Boston, represent 10.53 per cent of the total number of cities and towns in the Commonwealth, but they contain 65.88 per cent of the entire population.

The population in the territory now comprised within city limits has risen from 623,449 at the close of the war (1865) to 1,372,300, a gain of 120.11 per cent; while the State outside this territory has gained but 34.66 per cent. Massachusetts has gained 76.71 per cent in its population since 1865. To this gain we may well point with pride, but it is scarcely realized how largely the growth is confined to the cities and larger towns.

The population per square mile is now about 278, but this, of course, is in the nature of an average, and therefore misleading. In 35.32 per cent of the total number of cities and towns is found 86.42 per cent of the population, or, to express it more graphically, in about one-third of the cities and towns nearly nine-tenths of the population is found, and no one of these cities and towns has a population less than 3,000.

There are 351 cities and towns in the State, and, notwithstanding the large percentage of gain which I have cited, 143 of these, not quite half, but still approaching it, have a less population than in 1865. The growth of the cities and of the State is largely due to manufactures. That, of course, is well known. The condition of the towns without manufactures is perhaps equally well known in a general way, but not so fully realized. There are 134 towns in Massachusetts in which the annual product derived from agriculture exceeds that derived from manufactures. These towns contained 156,408 inhabitants in 1865. They have in 1890 147,823, a decline of 5.49 per cent. There are 110 towns in which the annual product of manufactures is less than $100,000 in value. These contained 113,610 in 1865 and have 100,929 today, a decline of 11.16 per cent.

The following table shows the increase in capital invested

and in annual product derived from manufactures in the cities in 1885 as compared with 1865. The absence of figures in the column for 1865 indicates that the municipality opposite the name of which the omission occurs was not then a city.

Cities.	Capital Invested in Manufactures in Cities existing in —		Value of Product of Manufactures in Cities existing in —	
	1865*	1885	1865*	1885
Boston	$17,754,911	$73,346,253	$57,930,110	$144,376,202
Worcester	2,905,310	18,344,408	9,609,992	28,699,524
Lowell	10,010,975	37,272,000	12,231,166	29,324,606
Fall River	3,175,516	38,419,919	11,329,109	22,915,656
Cambridge	1,558,955	11,872,416	4,421,696	15,502,373
Lynn	1,445,159	9,987,938	6,714,646	31,100,906
Lawrence	5,272,196	22,348,462	15,873,677	18,257,822
Springfield	1,520,414	12,024,404	4,138,417	12,528,823
New Bedford	2,332,646	15,069,695	6,986,910	11,334,770
Somerville	.....	4,255,900	.....	23,791,932
Holyoke	.....	17,923,517	.....	15,587,093
Salem	2,128,250	6,425,153	4,136,290	9,845,681
Chelsea	632,962	3,821,154	1,010,134	4,551,895
Haverhill	.....	4,333,861	.....	16,320.707
Brockton	.....	4,126,384	.....	13,370,828
Taunton	1,689,656	8,900,744	5,755,255	7,325,008
Gloucester	.....	2,733,492	.....	5,976,580
Newton	.....	1,660,378	.....	2,389,018
Malden	.....	4,695,902	.....	4,239,020
Fitchburg	.....	5,477,446	.....	6,231,866
Waltham	.....	6,774,952	.....	4,491,614
Pittsfield	.....	3,891,039	.....	4,488,271
Quincy	.....	1,699,251	.....	3,098,649
Northampton	.....	3,113,620	.....	3,720,028
Chicopee	.....	6,040,606	.....	3,586,213
Newburyport	1,145,796	5,512,956	2,560,120	4,644,966
Marlborough	.....	1,743,379	.....	6,417,617
Woburn	.....	3,547,535	.....	7,105,897
Totals (cities)	51,572,746	335,362,764	142,697,531	461,223,565
The State (except cities)	41,813,103	165,231,613	129,261,591	213,410,704
	$93,385,849	$500,594,377	$271,959,122	$674,634,269

* Currency values reduced to gold basis.

In 1865 the cities represented 55.23 per cent of the capital invested in manufactures, and turned out 52.47 per cent of the product. They now represent 66.99 per cent of the capital, and turn out 68.36 per cent of the product.

For the purpose of indicating the growth of the cities in wealth, I introduce a table showing the increase in 1890 as compared with 1865. As before, the absence of figures in the column for 1865 indicates that the municipality opposite the name of which the omission occurs was not then a city.

Cities.	Amount raised by Taxation in Cities existing in —		Valuation of Cities existing in —	
	1865*	1890	1865*	1890
Boston	$4,278,053	$11,187,692	$262,968,519	$822,041,800
Worcester	204,840	1,194,857	12,062,357	73,417,460
Lowell	203,773	1,094,357	13,424,433	62,046,799
Fall River	133,239	914,599	7,730,567	53,474,458
Cambridge	257,629	1,090,782	16,615,223	67,471,925
Lynn	140,348	644,821	6,763,698	40,721,028
Lawrence	114,942	474,071	8,139,532	30,476,223
Springfield	141,422	576,730	8,148,255	44,493,633
New Bedford	213,049	622,413	12,951,338	36,869,754
Somerville	.. ..	477,704	.....	32,557,500
Holyoke	.....	369,127	.....	22,073,825
Salem	141,436	461,871	9,052,803	26,178,190
Chelsea	110,013	373,816	5,271,943	20,798,339
Haverhill	.....	318,769	.....	17,877,772
Brockton	.....	281,780	.....	17,477,847
Taunton	94,158	327,061	5,039,925	17,823,032
Gloucester	.....	229,100	.....	13,945,439
Newton	.....	541,082	.....	36,159,025
Malden	.....	273,312	.....	17,257,475
Fitchburg	.....	266,869	.....	15,476,206
Waltham	.....	223,467	.....	15,210,714
Pittsfield	.....	159,963	.....	10,292,696
Quincy	.....	195,295	.....	13,677,410
Northampton	.....	149,485	.....	9,194,091
Chicopee	.....	85,889	.....	6,377,070
Newburyport	86,105	150,356	4,701,911	9,646,770
Marlborough	.....	109,487	.....	6,284,638
Woburn	.....	154,723	.....	8,918,306
Totals (cities)	$6,119,007	$22,949,478	$372,870,504	$1,548,239,425
The State (except cities)	4,581,841	8,554,188	258,875,930	905,895,201

* Currency values reduced to gold basis.

The cities in 1865 had 59.02 per cent of the total valuation, and paid 57.18 per cent of the total amount raised by taxation for all purposes. Now they have 71.87 per cent of the total valuation, and pay 72.85 per cent of the money raised

by taxation. The increase in valuation of property in cities in 1890 over that in cities in 1865 was from $372,870,504 to $1,548,239,425, or a gain of slightly more than 315 per cent; while the gain in valuation of property in towns is but about 134 per cent.

The cities may be grouped in classes according to the nature of their industries, and for the purpose of comparing the increase of city population and city valuation in 1890 as compared with 1865 the tables on the following page are of interest. As previously noted, the fact that a municipality was not a city in 1865 is indicated by the absence of figures in the columns for that year. All values are in gold.

Summarizing the results of these tables, it may be said that the population in cities existing in 1890 exhibits an increase over the population in cities existing in 1865, in the textile group, of 234+ per cent; in the boot and shoe group, 498+ per cent; in the leather group, 109+ per cent; in cities of diversified industries, chiefly metal working and machinery, 227+ per cent; and in cities classed as residential, 308+ per cent. The increase in valuation returned from cities existing in 1890 over that returned from cities existing in 1865, in each class, is, in textiles, 422+ per cent; in boots and shoes, 1,117+ per cent; in leather, 287+ per cent; in diversified industries, 612+ per cent; and in the residential cities, 677+ per cent.

Boston, as the chief commercial city, owing its growth to the fact that it is the metropolis of New England, and Gloucester, which is principally interested in fisheries, are omitted in the above classification. Indeed, the classification is to a certain extent arbitrary. All of the cities, including those classed as residential, have more or less extensive manufactures, and some classed under particular industry heads in these tables have other industries of importance. For instance, Holyoke, classed in the textile group, is the seat of paper manufacturing. Nevertheless, broadly speaking, the classification locates the cities in the classes representing that to which their growth is mainly due.

CITIES OF THE TEXTILE INDUSTRY.

Cities.	Population of Cities existing in —		Valuation of Cities existing in —		Percentages of Increase in 1890 as compared with 1865.	
	1865	1890	1865	1890	In Population.	In Valuation.
Lowell	30,990	77,696	$13,424,433	$62,046,799	150+	362+
Fall River	17,481	74,398	7,730,567	52,474,458	325+	578+
Lawrence	21,698	44,654	8,139,532	30,476,223	105+	274+
Holyoke	.....	35,637	.....	22,073,825	.....	.....
Pittsfield	.....	17,281	.....	10,292,696	.....	.....
Chicopee	.....	14,050	.....	6,377,070	.....	.....
New Bedford	20,853	40,733	12,951,338	36,869,754	95+	184+
Totals	91,022	304,449	$42,245,870	$220,610,825	234+	422+
CITIES OF THE BOOT AND SHOE INDUSTRY.						
Lynn	20,747	55,727	$6,763,698	$40,721,028	168+	502+
Haverhill	.....	27,412	.....	17,877,772	.....	.....
Brockton	.....	27,294	.....	17,477,847	.....	.....
Marlborough	.....	13,805	.....	6,284,638	.....	.....
Totals	20,747	124,238	$6,763,698	$82,361,285	498+	1,117+
CITIES OF THE LEATHER INDUSTRY.						
Salem	21,189	30,801	$9,052,803	$26,178,190	45+	189+
Woburn	.....	13,499	.....	8,918.306	.....	.....
Totals	21,189	44,300	$9,052,803	$35,096,496	109+	287+
CITIES OF DIVERSIFIED INDUSTRIES.						
Worcester	30,055	84,655	$12,062,357	$73,417,460	181+	508+
Taunton	16,005	25,448	5,039,925	17,823,032	59+	253+
Fitchburg	.....	22,037	.....	15,476,206	.....	.....
Waltham	.....	18,707	.....	15,210,714	.....	.....
Totals	46,060	150,847	$17,102,282	$121,927,412	227+	612+
RESIDENTIAL CITIES.						
Cambridge	29,112	70,028	$16,615,223	$67,471.925	140+	306+
Chelsea	14,403	27,909	5,271,943	20,798,339	93+	294+
Somerville	.....	40,152	.....	32,557,500	.....	.....
Newton	.....	24,379	.....	36,159,025	.....	.....
Malden	.....	23,031	.....	17,257,475	.....	.....
Quincy	.....	16,723	.....	13,677,410	.....	.....
Northampton	.....	14,490	.....	9,194,091	.....	.....
Newburyport	12,976	13,947	4,701,911	9,646,770	7+	105+
Totals	56,491	230,659	$26,589,077	$206,762,535	308+	677+

The cities now have nearly 62 per cent of the population, nearly 72 per cent of the taxable property, and in them is invested nearly 67 per cent of the industrial capital of the State. This implies that the interests of the cities are no longer quite identical with the interests of the towns.

I have shown that the effect of immigration, both directly on account of the presence of the foreign born and also indirectly through the native born of foreign parentage, is much greater in the cities than in the towns. The foreign born have entered citizenship. A comparison as to the increase or decrease in 1885 as compared with 1875, in the proportion of foreign born voters in each municipality now having a city government, shows that seven cities out of the total number show a slight decrease. These are Holyoke, Newton, Pittsfield, Somerville, Springfield, Waltham, and Worcester. All others show an increase. Bearing in mind that the percentage of foreign born voters of total voters for the State is 22.31, it will be understood how great is the concentration of foreign born voters in cities. Fall River, for example, has 49.95 per cent of its total voters foreign born,—about one-half; Boston about one-third. In this respect each city has but slightly changed since 1875. The leading textile cities — Fall River, with 49.95 per cent of its voters foreign born; Holyoke, with 40.76 per cent; Lawrence, with 45.12 per cent; Lowell, with 33.47 per cent — and the city of Woburn, with its extensive leather industry, 39.72 per cent, out rank all others in this comparison. Brockton, Lynn, and Haverhill, leading boot and shoe cities, have a relatively small proportion of foreign-born voters, the percentages being, respectively, 13.80, 16.91, and 12.80; in each case considerably below the percentage for the State.

These comparisons indicate that public opinion in Massachusetts will in the future be largely controlled by the cities, and also that it will be different from what it has been in the past. I do not say it will be less effective upon moral questions, I only point out that it is likely to express some-

what different views from those which have sometimes prevailed respecting matters of public interest.

Of course the social problems are complicated by the rapid increase of our cities. In fact, in Massachusetts they make our social problems. There are two extremes that are opposed to civilization,— life in the city slums and life in the backwoods. Both these extremes we seem likely to touch. They are not equally dangerous, but they are equally undesirable. Between them lies that most attractive form of modern life, that which is possible under the best conditions near the city but not in it. Probably nowhere in this country is a better example of that life than is found in the environs of Boston, within a circle extending 12 miles from the State House. The cities and towns within this circle had in 1885 a population of 731,746, or 37.68 per cent of the entire population. The present population is 872,482, or nearly 39 per cent of the population of the State. The rate of increase in these cities and towns is somewhat greater than the rate of increase for the State. The proposition has recently been advanced to unite all these suburban cities and towns to the City of Boston. Whether this is done or not, one may hope that the type of life represented in these municipalities may continue.

There is no immediate danger of overcrowding in Massachusetts cities, and such instances of overcrowding as may undoubtedly be found in some quarters of Boston, and in some of our manufacturing towns, need not exist. Upon the outskirts of each city is a suburban district which may be easily connected with the business sections, so that increasing population within city limits need not here mean, as it has meant in so many European cities, crowded tenements with their inevitable evils.

Among the agencies which will do much to counteract the dangers attending the growth of cities are: —

1. Such a modification of our tax system as shall prevent so far as possible the holding of unoccupied land for specu-

lative purposes, and shall foster rather than retard the ownership of homes.

2. The further development of co-operative banks or building associations.

3. The extension of systems of rapid transit, and the further introduction of electricity as a motive power.

4. The enforcement of existing laws, and such further legislation as may be necessary, respecting the sanitary inspection and control of tenements.

5. The general advancement of the wage-earning classes.

Each of these agencies seems likely to operate in Massachusetts.

RATE OF NATURAL INCREASE OF POPULATION IN UNITED STATES.

By Herman Hollerith, Ph.D.

Many criticisms of the accuracy of the enumeration of the Eleventh Census have appeared during the past month, based upon the fact that this enumeration, when compared with those of 1860 and of 1880, would indicate a very marked falling off in our rate of natural increase. Because the decennial rate of natural increase fell from an average of 18.5 per cent for the two decades 1860 to 1880 to 14.4 per cent, the rate for the decade 1880 to 1890, these critics argue that the enumeration of 1890 must be defective.

Aside from any consideration touching the accuracy of the recent enumeration of our population, this question of decline in our rate of natural increase is an important and interesting one, and far reaching in its effect, and it may therefore be worth while to call attention to some facts bearing upon it. In the first place, let us understand the meaning of "natural increase" as used in this connection. This expression is intended to define the increase of our population due to the excess of births over deaths, irrespective of the effects of immigration. The rate of natural increase can therefore be defined as the excess of the birth rate over the death rate.

Let us first examine a few of the causes affecting the death rate. The most important factor bearing upon this rate is the age distribution of our living population due to the great variation in the death rate at different age periods. The question therefore first to be considered is, has there been any great change in the age distribution of the population of the United States during the past half century? To answer this we need but call attention to the following table: —

Year.	Per Cent of Total Population over 40 Years of Age.
1850	16.94
1860	17.81
1870	19.97
1880	20.93

In other words, while in 1850 only 17 per cent of our total population was over forty years of age, in 1880 we find twenty-one per cent of the aggregate population above that age. To discuss the effect in detail of this upon our death rate, and consequently upon the rate of natural increase, would be beyond the limits of the present article. It needs but a moment's consideration, however, to see that, other things being equal, the effect of this would be to increase to a very material extent the death rate, for we know that after forty years of age the death rate increases very rapidly. On the other hand, the excess of this aged and sterile class would, of course, reduce the birth rate. The net effect thus being to reduce the rate of natural increase, first by increasing the death rate, and further by decreasing the birth rate.

While the effects of changes in the death rate might be considerable, they would not be likely to effect the rate of increase so much, or so directly, as changes in the birth rate. The death rate is subject to but slight causes of variations outside of the influence of age distribution, and may be considered beyond human control. The birth rate, however, is largely dependent upon conditions entirely within the control of the population itself. The age at marriage and the proportion of married women within certain age limits control almost directly the birth rate, and are entirely within the control of the population. Dr. Farr, for example, has shown that the rate of natural increase in England could be doubled by simply transferring a part of the unmarried women to the ranks of the married. This is cited to show the possible extent of the influence of these factors on the rate of natural increase.

Let us now consider for a moment such fragmentary and unsatisfactory data as we have, throwing light on the birth rate in this country during the past fifty years. And here it is difficult to refrain from calling attention to the fact that, were the different papers and writers, now so freely questioning the accuracy of the last enumeration, because there has been a falling off of the rate of natural increase, to utilize their energy in the direction of establishing in this country some thorough and complete system for the registration of births, deaths, and marriages, and securing some comprehensive tabulation of the yearly immigration by age and sex, they would do a service tenfold more valuable to the country at large. However, had we such data at hand there would be no need to reply to the criticisms upon the Eleventh Census other than to refer to such statistics.

Since 1850 we have the population at each census compiled with reference to age, and we thus know at each of said censuses how many persons there were under ten years of age. This number represents the survivors at each census of those born in this country during the preceding decade (immigration at this age period being relatively insignificant), and this number would therefore be in proportion to the number of births during the preceding decade. If now we compare the number of children under ten years of age at each census with the aggregate population of the preceding census, we obtain a ratio proportional to the average birth rate during the given decade. We thus have the following table: —

Year.	Aggregate Population in Thousands.	Year.	Children under 10 Years, Thousands.	Number of Children to each 100 Popul.
1840	17,069	1850	6,739	39.5
1850	23,192	1860	9,014	38.9
1860	31,443	1870	10,320*a*	32.8*b*
1870	38,558*a*	1880	13,394	34.7*c*

We know that the figures *a a* are too low, due to the defect of the enumeration of the census of 1870, and that therefore

the figure *b* is too low and *c* is too high. It would probably not be far from correct if we assume 33.7 as the average from 1860 to 1880. These figures can be explained only by the assumption of a very rapid falling off in the birth rate from 1840 to 1880, and it will be found when the age tables are compiled for the census of 1890 that the figure for the decade from 1880 to 1890 will not be much, if any, over 30.

It has been claimed that the "most serious reason" for questioning the accuracy of the Eleventh Census is the fact that this census shows that the decennial rate of natural increase, or more properly the increase of the population excluding immigrants, has fallen from 18.5 per cent, the average of the two decades 1860 to 1880, to 14.4 for the decade 1880 to 1890.

It is obvious that these critics overlook the fact that this rate has been gradually falling, as shown in the following table: —

Decade.	Per Cent of Increase, Excluding Immigrants.
1820–1830	32.1
1830–1840	28.0
1840–1850	25.8
1850–1860	24.4
1860–1870 }	Average, 18.5
1870–1880 }	
1880–1890	14.4

There certainly is no more reason to question the Eleventh Census because this rate fell from 18.5 to 14.4 than there is to question the Tenth Census because this rate fell from 24.4 to 18.5.

Let us, however, compare these rates, which indicate approximately our rates of natural increase, with the figures which we have, indicating approximately the birth rate. Naturally, the difference between these two rates would indicate a rate proportional to the death rate. It must of course be understood that these figures do not indicate the actual

birth and death rates, but merely that they are proportional to such rates. Here is the table:—

Decade.	Rate of Natural Increase.	Birth Rate.	Death Rate.
1840–1850	25.8	39.5	13.7
1850–1860	24.4	38.9	14.5
1860–1870 } 1870–1880 }	Average, 18.5	33.7	15.2
1880–1890	14.4	30.2	15.8

We notice in the first place that the death rate, or rather the difference between what we call the rate of natural increase and what we call the birth rate, has gradually increased, and it is but natural that the forces acting to produce this result should have continued, though perhaps not to so great an extent, during the past decade. It is therefore not unnatural to expect that this difference will reach during the past decade 15.8, which if added to 14.4, the rate of natural increase, would give us 30.2 as the figure corresponding to what we have called the approximate birth rate. Inserting these figures in the table (and it will be found when the age tables are compiled for the Eleventh Census that they are nearly correct), and examining the table as a whole, nothing can be found in it either startling or remarkable. It would indeed be strange were the table to look otherwise than it does.

One editor has actually criticised the Superintendent of the Census for not discussing this most natural falling off in the rate of natural increase. Perhaps the editor in question would desire the Superintendent of the Census to enter into a discussion of the many reasons for the constant decrease in the birth rate during the past fifty years. The data bearing on this question are so meagre, and the causes which have worked to produce this effect so many and so varied, that even a Superintendent of Census, diversified as are the requirements of his duties, can hardly be expected to enter

upon a discussion of them. Let us, however, briefly consider a few of these causes.

As before stated, the most important factor bearing upon the birth rate is the age at which marriage is contracted. While data bearing upon this subject in this country are scarce, still such data as are available show clearly that the average age at which marriage is contracted is constantly advancing. In Massachusetts, for example, the average age of women marrying for the first time has increased during fifteen years from 23.4, in 1872, to 24.4, in 1887.

Again, the proportion of married women and the ages of such married women should be taken into account. Here again, unfortunately, we have no complete data; but if we refer to the Massachusetts Registration Report, we find in the first place that there was a sudden drop in the marriage rate about the year 1858, and that this rate remained abnormally low until about 1864. It then increased rapidly, reaching a maximum of 22.15 in 1866, and remained high until 1873, when it suddenly dropped and has remained comparatively low ever since.

While, of course, it is dangerous to draw any conclusions from so small a fraction of the population of the United States,— about one-thirtieth,— still it is believed that these figures represent the general characteristics of the fluctuations of the marriage rate for the entire country.

It has been found in Sweden that the difference between the mean age at marriage and the mean age of mothers is about six years. The difference in this country cannot be far from this, and it is therefore safe to assume that the births of any given year should be compared with the marriages six years previous, so that the births during the decade from 1880 to 1890 should be compared with the marriages during the decade 1874 to 1884, and likewise for the births during the decade 1870 to 1880 we should refer to the marriages from 1864 to 1874. We thus have this table:—

Decade.	Average Persons Married to 1000 Living.
1855–64	19.25
1865–74	20.79
1875–84	17.14

Dr. Farr, in discussing the causes of fluctuations in marriage rates, says: "It is a fair deduction from the facts that the marriage returns in England point out periods of prosperity little less distinctly than the funds measure the hopes and fears of the money market. If one is the barometer of credit the other is the barometer of prosperity." It is believed that the causes operating to affect these fluctuations in the marriage rate of Massachusetts were not local, but acted throughout the United States. We can see clearly in this table of marriage rates of Massachusetts the effect of the reaction following the close of the war, and even more marked the effect of the panic of 1873.

To explain fully the falling off in the rate of natural increase we need hardly assume more than that these fluctuations in the marriage rates were general throughout the country, and that the average fecundity of a marriage has not increased. There are, in fact, many reasons to believe that it has diminished appreciably.

In considering the question of our natural increase, one is confronted at almost every turn by a lack of sufficient data for any positive deduction. We have already referred to the absence of reliable statistics relating to births, deaths, and marriages, and the proper tabulation of data relating to immigrants coming into this country. It is painful to anyone interested in American statistics to contrast our entire lack of data relating to these subjects with their thorough registration and compilation by every other civilized country.

In regard to the compilation of data obtained by the Census Office itself, it is believed that the Eleventh Census of the United States will far surpass any previous census in

this or any other country. In the first place, we have on the schedule of population itself the additional inquiries as to the number of children born and living, and the number of years that foreign-born persons have resided in this country. We also have, as at the Tenth Census, the inquiry relating to conjugal condition and whether married during the census year. These latter inquiries unfortunately were never compiled for the Tenth Census, and hence we shall probably be unable to make any comparisons when this information is compiled for the Eleventh Census. If the answers to these inquiries are compiled in connection with sex, race, age, and nativity, and a further distinction is drawn between the native born of native parentage and the native born of foreign parentage, as it is believed will be done by this census, we will have a mass of information such as has never been obtained in this country, and such as will increase in value at each subsequent census for purposes of comparison. With such data from previous censuses the reasonableness or unreasonableness of the rate of natural increase can readily be demonstrated.

THE FIRST CENSUS OF MASSACHUSETTS.

By the Hon. Samuel A. Green, M.D.

Librarian Massachusetts Historical Society.

The earliest census of Massachusetts was taken during the Provincial period under great difficulties. Before that time, it is true, on various occasions, there had been collected certain statistics which embraced the number of families or of polls, or other minor inquiries, but there had not been previously a general enumeration of all the inhabitants.

On June 2, 1763, Governor Francis Bernard sent a message to the General Court, expressing his wish that a census of the Province might be taken; but that body paid no heed to the suggestion. It was under his administration that an attempt to enforce the Writs of Assistance had previously been made, and this rendered him unpopular among the sturdy yeomanry with whom he had no sympathy. On January 19, 1764, the Governor renewed the proposition, apparently with better success, for the Legislature, on February 2, adopted an order carrying out his wishes. The popular heart, however, was not in the work, and no public interest was felt in the measure. The people were suspicious of the rulers in England, and jealous of all political interference, and naturally the census proceeded slowly. On March 5, 1765, an Act was passed by the General Court to carry into effect an order which had already been passed for numbering the people within the Province. This supplementary action shows that the Governor's pet scheme was not receiving a warm support.

With these drawbacks, and under such conditions, the first official registration of the number of people in the Province of Massachusetts Bay ever made was finished in the year 1765. It included as well the number of families, the number of boys and girls under sixteen years of age, the number

of men and of women, and also of negroes. Singularly enough, there are now no traces or returns of this enumeration among the State archives, where they were undoubtedly placed. How or when they disappeared is a matter of conjecture, but probably they were lost amid the confusion that naturally and necessarily prevailed during the revolution. Fortunately, a copy of this census was found by the late Judge Samuel Dana, of Groton, among some papers of a deceased friend, which had then lately come into his possession; and by him sent to the *Columbian Centinel* (Boston), where it was printed for the first time in the issue of August 17, 1822, more than half a century after the enumeration was made. From this source is derived all the information we have concerning the figures of that early census; and the printed copy, in the absence of any other, is an authority second in importance only to the original manuscript returns.

In his letter to the editor of the *Centinel*, Judge Dana suggests that the copy — presumably the original document — after it was printed should be sent to the Antiquarian Society for preservation in its library. If he meant by this name the American Antiquarian Society at Worcester, it appears not to have been done. Some years ago, at my request, a careful search for the missing manuscript was made by the librarian, but without success; and no record of the document is now found among the accessions of that period. After it had been used as "copy" by the printers, it probably was thrown away.

In the early days of library management, loose manuscripts and other papers were not guarded with that care which they now receive, and consequently were more liable to be lost. I mention this fact because once these census returns were probably in the possession of the Massachusetts Historical Society. Among some gifts made to the Historical Library by the Reverend Dr. James Freeman, on April 9, 1791, is a "List of Inhabitants in the Province of Massachusetts Bay, in 1764 and 1765" (*Proceedings*, I. 8), which does not appear

in the Society's catalogue published in the year 1811, nor is there now any clew to it. The catalogue of 1796 does not give the separate manuscripts, so that it affords no help in the matter. Perhaps this list was taken out from the library by a member at some time between the years 1791 and 1811, and was not returned. Subsequently, it may have drifted into Judge Dana's hands, and thus found its way to the public through the columns of the *Centinel*.

Akin to this subject, there is now in the Historical Society's library a memorandum-book of forty-five pages which contains some interesting facts connected directly or indirectly with the population of the Commonwealth during the revolutionary period. Mr. Felt, a former librarian, evidently used it in preparing an article on the population of Massachusetts, published in the first volume of the "Collections of the American Statistical Association" (Boston, 1847). In his paper Mr. Felt gives nearly all the statistics found in the memorandum-book, and speaks of it as "a manuscript of credible authority" (page 157), though without mentioning it more specifically. The number of white persons within the State in the year 1776, and the number of polls in 1778 and 1781, as well as other statistical facts, are also given, though it is not known by whom the record was made. It furnishes a few items of some value for comparison with later enumerations.

In compliance with a resolution of Congress, an Act was passed by the General Court, on July 2, 1784, requiring the assessors of towns, districts, and plantations to make certain returns, such as the quantity of land within their respective limits, and the number of buildings thereon, distinguishing dwelling-houses from other buildings, and the number of inhabitants of all ages and sexes, distinguishing white from black. These returns were to be made before the first day of the ensuing November. While they are meagre by the side of those of more modern times, they are of interest in connection with subsequent returns.

The first enumeration of the Commonwealth, under a national census, was taken in 1790, and even then the statistical returns were scanty. A comparison of this census with the one of last year shows many marked changes in the relative position of towns in their size and importance. Take certain places in Middlesex County, for instance, and compare them in their population with the same places of today; and the result is suggestive. At that time Cambridge was the largest town in the county, and Groton came next. Cambridge had 355 families, numbering 2115 persons; and Groton had 322 families, numbering 1840 persons. Charlestown had a population of 1583, and Newton 1360. Reading, with 341 families (19 more than Groton), numbered 1802 persons (38 less than Groton). Woburn then had a population of 1727, Framingham 1598, Marlborough 1554, and Waltham 882. Pepperell contained 1132 inhabitants, Shirley 677, Westford 1229, and Littleton 854. There were at that time in the county 41 towns, which number has since been increased to 46 towns and 8 cities; and in the meanwhile Brighton and Charlestown have been merged in the municipality of Boston, and thus have lost their separate existence. The county today contains more cities than any other within the limits of the Commonwealth. They are eight in number, and, according to their municipal seniority, as follows: Lowell, Cambridge, Somerville, Newton, Malden, Waltham, Woburn, and Marlborough. Essex County comes next with six cities, as follows: Salem, Lynn, Newburyport, Lawrence, Haverhill, and Gloucester.

THE COMMERCIAL DEATH RATE.

By Albert C. Stevens.

The field for investigation of social statistics opened by *Bradstreet's* when it defined anew a "business failure," taken in connection with that journal's record and classification of the causes of failures and its determination of the approximate total business population of the United States, promises important and hitherto unsuspected results. At this time the development of the inquiry has made comparatively little progress, but actual and prospective discoveries have been grouped which will claim attention from all students of social problems.

The purpose of this paper is to furnish a brief record of the work of determining the real as well as the nominal commercial mortality rate and, incidentally, to indicate the direction which future investigations are likely to take, together with the nature of results foreshadowed.

The business population of the United States, for the purpose of this inquiry, consists of the total number of individuals, firms, and corporations reported by The Bradstreet Company, as having a distinctive position in the commercial, industrial, and financial world. Of these there were 989,420 at the end of the calendar year 1890. The business population compared with the total actual population of the country is therefore very small, only about 1.6 per cent; ten years ago it amounted to only 1.4 per cent. But as business operations are conducted almost exclusively (in an executive sense) by (male) adults, manifestly a different comparison should be made. At the date of the Tenth Census the number of male adults reported having business occupations was, in round numbers, 12,000,000, but the business population amounted to 703,000, or only 5.8 per cent of that number. Ten years later, estimating the total number of (male)

adults in 1879–80 at approximately 15,000,000, the proportion forming the so-called business population of the country was 6.5 per cent.

It is worth while at this point to examine the records of the Tenth Census as to the number employed in gainful occupations in 1879–80, in order to ascertain clearly what classes of occupations appear to be assigned a place in the business population. Among the general divisions of occupations made by the census in 1880, the following approximate totals were included in what was regarded as the total business population at that time: —

	Totals, included in "business population."	Number of (male) adults in each division.
1. AGRICULTURAL		5,500,000
Dairymen, Florists, Nurserymen, Stock-raisers, etc., ...	27,000	
2. PROFESSIONAL AND PERSONAL SERVICES .		2,200,000
Livery Stable, Hotel, and Restaurant Keepers, ...	47,000	
3. TRADE AND (4) MANUFACTURING . . .		4,300,000
Agents, Newspaper Dealers, Packers and Shippers, Liquor Dealers, Banks, Bankers and Brokers, Traders and Dealers, and Manufacturing Concerns, . . .	590,000	
In addition, Miscellaneous and Individual, .	64,000	
Totals 1879–80, ...	728,000	12,000,000

In the foregoing classification no account is taken of the vast (male) adult farming population, of employees in any line of business, of savings banks, insurance companies, of transportation interests, or of any purely speculative business enterprises. This classification, in connection with annual totals of mercantile failures, has been preserved for twelve years, and forms the field in which the study of statistics of commercial mortality has been undertaken; it is, as has been seen, a little plot, including not quite one million individuals, firms, and corporations in 1890, out of probably 15,000,000 adults engaged in gainful occupations of any kind in that year.

The business population of the United States each year, from 1879 to 1890 inclusive, with the total number of individuals, firms, and corporations discontinuing business for any cause during those years, the net increase per annum of commercial, industrial, and financial "births," and totals of business failures reported, with percentages of the same to the total business population, are for the first time brought together in one exhibit as follows:—

Calendar Year.	*Total Business Population in United States.	*Total Number Dropping out Each Year.	*Net Total Number Added Each Year.	Number Reported Failing Each Year.	Per Cent Reported Failing to Total Business Population.
1879	703,000	100,000	.....	6,652	.94 of 1 p. c.
1880	733,000	110,000	30,000	4,350	.60 " "
1881	780,000	110,000	47,000	5,929	.76 " "
1882	820,000	105,000	40,000	7,635	.93 " "
1883	855,000	110,000	35,000	10,299	1.20 "
1884	875,000	120,000	20,000	11,620	1.32 "
1885	890,000	145,000	15,000	11,116	1.25 "
1886	920,000	165,000	30,000	10,568	1.15 "
1887	933,000	170,000	13,000	9,740	1.04 "
1888	955,000	178,000	22,000	10,587	1.10 "
1889	978,000	209,000	23,000	11,719	1.20 "
1890	989,000	229,000	11,000	10,673	1.07 "

*Estimated in part.

The determination of what constitutes the business population of the country was first undertaken by officials of the Tenth Census, with the co-operation of the Bradstreet Company. Of the importance of the inquiry the census report said:

"Another body of data of great value in making this investigation consisted of the returns of the property invested in all branches of business, manufactures, trade, and banking as collected by one of the great mercantile agencies of the country, viz., that of the Bradstreet Company, which kindly consented to allow the census office to compile this matter from the reports made to them by their agents, on the sole condition that the names of the individuals and business houses concerned should not be made public. . . . Such

material, when used discriminatingly and carefully, not as being ultimate authority, but as data to be sifted and compared with data derived from independent sources, may become of great value in a statistical investigation like this. When it is considered that nearly a million corporations, firms, or individuals doing business were enumerated in this collection, which embraced every kind of business in which credit is asked or received, whereas the census law makes no provision for obtaining the capital invested in trade or banking, and obtains whatever it does get regarding the capital invested in manufactures at a great disadvantage on account of the reluctance of individual proprietors to disclose the facts of their business, it will appear that such a body of material might be made of much service in dealing with the question before us (the aggregate sum of wealth of the United States on June 1, 1880)."

From the tabular exhibit in the foregoing it appears that from 1880 to 1890 the increase in the business population was 40 per cent, as compared with an officially reported increase of 24 per cent in the total population of the country. The total number reported failing each year has nearly doubled within the decade, but the practical uniformity of the number who fail each year, in proportion to the total business population, is striking, and reminds one of the remarkable results obtained by statisticians as to conditions under which the total number of marriages, suicides, deaths, births, and other social phenomena take place with greater or less frequency. Comparatively heavy additions to the number reported in business in the earlier portion of the past decade are due to the extraordinary expansion of exports, and to the "boom" in business in all lines incident to the years 1879, 1880, 1881, 1882, and to some extent in 1883. For like reasons the number dropped annually from totals of business population from 1879 to 1883 was relatively small. At the close of 1883, a check to the extension of credits had hardly attracted general attention when early in the year

following (May, 1884) came the panic which brought with it a year and a half of trade depression and required another year of recuperation before another twelve-month of general commercial and industrial activity was experienced — in 1887. Business was relatively quiet in 1888 and 1889, traders manifesting a disposition to await developments. In 1890 trade was much more active, and, notwithstanding a financial panic at New York in November of that year, the twelve months must be regarded among the more prosperous of the entire decade. This brief reference to the state of general trade for ten years past, together with the growth of the business population, will account for much of the variation in the total number of failures reported.

At this point the inquiry arises, what is a "business failure?" Heretofore the "failures" referred to have been of individuals, firms, and corporations which have not only *not* been successful, but which in each instance owed more than they could pay; in other words, failures of those *whose creditors suffered* by the failures. But there are manifestly other business failures than those in which creditors as well as principals lose money. We have seen in the foregoing that within twelve years from 100,000 to 229,000 names of individuals, firms, and corporations have been dropped annually from totals constituting the business population of the country. So, as may be inferred, it is not unlikely that in the near future the attempt may be made to record business failures in which principals alone lose money (by impairment of capital, by drafts on private resources, or by failure to make profits enough to constitute interest on investment) and pay losses and retire; in a sense they may be said to die (a commercial or industrial death) and "make no sign."

After thus re-defining a business failure, reference to the foregoing table causes one to wonder what proportion of the 200,000 or more names of individuals, firms, and corporations dropping from the commercial and industrial ranks each year are failures. The answer to this, it is to be hoped, will be

made with some definiteness within a year or two, as the work involved is now under consideration by the institution which, by this contribution to social statistics, has shown how it has taken on in part a public character and function.

It is worth noting that those having to do with the necessary daily, weekly, monthly, and yearly weeding out of names of individuals, firms, and corporations among those included in the total business population of the country recorded by the Bradstreet Company report that 66 to 75 per cent of the total, dropping out of business and erased from the record each year, are actual *discontinuances* of business,— failures to succeed,— while the remaining 25 to 34 per cent consists of those making "changes in business," the element of success not being absent. This is a very broad generalization, yet to those who have been reporting this class of business changes year in and year out it is not unlikely that it includes a fair approximation to the fact. It may be taken, therefore, that the average annual number of names dropped from the records of the total business population within twelve years past is 142,000. Of this total, 75 per cent, or 106,500 is suggested as the proportion failing from all causes. If 9,256, the average annual number (heretofore classed as failures), be subtracted, the remainder, or 96,244, is the indicated probable average annual number "failing" in business without loss to creditors,— yet failing to make a success. Regarding this calculation as only approximate, it is found that, whereas the percentage of the average number failing each year (with liabilities in excess of assets) is 1.06 per cent of the average total in business, the percentage of those failing without loss to creditors is 11 per cent, and the proportion of both varieties of failures, per annum, to total in business is 12.1 per cent. If the proportion of two-thirds be used, of total actual failures to number in business, it will be found that 9.7 per cent of the 874,000 in business failed without loss to creditors.

In the inquiry as to "causes of business failures," recently made public in *Bradstreet's*, is found a novel and valuable

collection of data. The chief causes of business failures are divided into six leading classes, two of which are again divided as follows: —

CAUSES OF BUSINESS FAILURES IN THE UNITED STATES IN 1890.

			Per cent. No.	Per cent. Liab.
A. Percentages of the number and liabilities of traders failing primarily through faults of their own.	I. INCOMPETENCE.	1. INCOMPETENCE (unsuitability, incapacity).....	18.8	12.3
		2. INEXPERIENCE.....	5.7	2.1
		3. LACK OF CAPITAL.....	37.9	26.1
		4. UNWISE GRANTING OF CREDITS.....	4.7	4.2
	II. NEGLECT OF BUSINESS.	1. SPECULATION (outside regular business).....	5.6	11.2
		2. NEGLECT (due to doubtful habits).....	3.6	1.4
		3. PERSONAL EXTRAVAGANCE.....	2.1	1.5
	III. FRAUDULENT DISPOSITION OF PROPERTY.....		3.9	3.9
B. Percentages of the number and liabilities of traders failing through influences primarily beyond their control.	IV. DISASTER (flood, fire, crop failure, commercial crisis.....		12.7	24.3
	V. FAILURES OF OTHERS (of apparently solvent debtors).....		2.4	11.9
	VI. SPECIAL, OR UNDUE, COMPETITION.....		2.3	1.2

Results of the examination with reference to the United States, for the year 1890, are condensed into the following to form the basis of a new collection of social economic statistics: —

SUMMARY — BUSINESS FAILURES IN THE UNITED STATES CLASSIFIED AS TO CAUSES.

Failures due to	No.	Assets.	Liabilities.
Incompetence	2,005	$10,656,524	$21,545,326
Inexperience	611	1,951,933	3,562,065
Lack of capital	4,052	23,601,043	45,818,994
Reckless granting of credits	502	3,935,656	7,204,055
Failures of others	257	9,745,954	20,790,648
Personal extravagance	232	1,265,670	2,626,381
Neglect of business	390	1,223,198	2,411,502
Undue competition	246	1,235,549	2,194,551
Disaster, or commercial crisis	1,358	28,627,846	42,650,814
Speculation outside	604	8,917,424	19,616,481
Fraudulent disposition	416	1,604,828	6,612,069
Totals	10,673	$92,775,625	$175,032,834

The first three classes of causes of business failures, with sub-divisions, as arranged in the tabular view presented in the foregoing, refer, it is perceived, to inadequate training, wisdom, and capital possessed by those who fail. It is thus seen that more than four-fifths (82.3 per cent owing only 62.7 per cent of the total liabilities) of all who failed in business in the United States in 1890 did so, *primarily*, because of lack of equipment, either natural or acquired, mental or financial.

Failures resulting from the three remaining causes, those caused in some way by what may be termed outside influences, are seen to amount to only 17.4 per cent of the whole number,— about one-sixth,— yet their aggregated liabilities are equal to more than one-third of the whole amount, or 36.2 per cent.

The largest number of failures due primarily to any one of the foregoing causes was of those caused by lack of capital, which does not refer exclusively to traders with small capital, but includes as well those who tried to do more business than the capital available warranted. Such failures amounted to nearly 39 per cent of the whole number, but their total liabilities were only 26.1 per cent of the aggregate, indicating that by far the larger proportion of such failures (numbering 4,052) were of traders with small or inadequate capital. It has been pointed out that nearly 90 per cent (9,572) of all the failures in 1890 were of individuals, firms, or corporations with $5,000 capital or less (*Bradstreet's*, January 24, 1891), and the inference is that the remaining 5,520 traders with that capital or less did *not* fail on account of the lack of capital, or of overtrading. The probabilities are that most of them will be found classified among the 2,616 who failed from a want of fitness for or experience in the ventures in which they were engaged, among the 1,358 who were overcome by disasters of one form or another, and to some extent among all or nearly all of the remaining classifications.

Among the seven groups in Class A only one — failures

due primarily to speculation outside of the regular business — is found to carry a disproportionately large percentage of liabilities. This indicates that concerns of larger capital and some credit predominated among failures of that group. In the groups under Class B concerns lightly capitalized undoubtedly predominated among those which failed primarily owing to undue competition, as indicated by the relatively small proportion of liabilities. But failures due to failures of debtors and to disasters (in many instances to financial stringency during the late months of 1890) were evidently made up to a noticeable extent of individuals, firms, or corporations of fair credit, or better, and with considerable capital.

The more conspicuous conclusions indicated by the foregoing are well calculated to attract attention: —

1. That only one (male) adult in every 17 in business in commercial, financial, and industrial lines is engaged as chief executive, partner, or proprietor.

2. That one in every 94, engaged in business as above, fails each year, with liabilities in excess of assets.

3. That (in all probability) one in every nine (or ten) engaged in business, as described, fails each year, but without financial loss to others.

4. Aggregating failures of both varieties, it appears that one in nearly every 8.2 have failed, on the average, each year during the past decade.

5. And, finally, judging from the preliminary inquiry into causes of business failures, it would seem that 80 per cent of the failures where liabilities exceed assets are due primarily to faults of those failing, and are, therefore, proportionately larger than they may be in the future, when causes of mercantile failures have been more fully studied.

The source of the foregoing information is the business community itself,— obtained by and given out through the Bradstreet Company, an organization engaged in recording, publishing, and defending the credit of solvent merchants and institutions throughout the world.

PARLIAMENTARY ELECTIONS IN JAPAN.

By Theodore M. MacNair, Tokyo.

On the 10th of June, 1890, the fifteen largest tax-payers[1] on land and income in each city (*fu*)[2] and prefecture (*ken*) in Japan chose one from their number to represent them in the House of Peers, which convened for the first time November 25th. Of the 45 men who were elected (subject to the Emperor's approval) 22 are farmers, 15 are merchants; and of the remainder two are manufacturers, one is a mine owner, and one is the president of a bank. One of the number is a nobleman, and seven represent the old *samurai* or gentleman-warrior class. It is remarkable that the percentage of *haemin*, men who less than a half century ago were denied social recognition, is as much as four-fifths of the number elected. It illustrates the change which has come to Japan with the revolution of Meiji. These men now sit in conference upon matters of state with the princes and nobles of the realm. They constitute one-seventh of the total membership of the Upper House, a body that is composed of 10 princes (exclusive of the members of the Imperial family) and 21 marquises, sitting by virtue of their titles; 15 counts, 70 viscounts, and 20 barons, elected by their respective orders, or 136 nobles in all; and in addition an equal number of Imperial nominees, 45 of them as above (by approval), and the remainder by direct appointment from any class of citizens.

The largest tax-payers on the city and prefectural list are *haemin* farmers. One pays over 11,000 yen,[3] another 5,800, and two others 4,900 and 3,900. There are 22 who pay over

[1] The estimate is made on the basis of the *national* taxes. Local taxes are excluded.

[2] There are three city (*fu*) governments, viz., Tokyo, Kyoto, and Osoka, and 42 prefectural (*ken*) governments. A *ku* is a division of either *fu* or *ken*.

[3] These figures are approximate only. One yen equals one Mexican dollar.

1,000 yen each. The lowest amount is 262 yen, and is paid by the one nobleman included in the number.

Of the 91 seats in the Upper House that are in the immediate gift of the Crown only 61 have as yet been filled; 27 of these fell to the lot of members of the lately abolished Senate, and 14 to others who had also filled various government positions. Nine seats were given to educational men, chiefly to professors in the Imperial University, three to bankers, and two to men of especial prominence in commercial circles.

In the election of nobles (term, seven years) the greater number of those chosen by their peers hold titles that are older than the present era, Meiji,[4] 1868; that is to say, among the 15 counts 3 only are from the later creations, though there are 28 among the 70 viscounts and 11 among the 20 barons. This conservatism of the nobles is further observable in the exclusion from the lists of all but two of the members of the present cabinet, who as a whole represent the newer blood.[5]

No one connected with the Imperial household or a member of the Privy Council is allowed a seat in Parliament; nor are officials in the government service, with some exceptions,[6] or the priests and teachers of religion, admitted.

The qualifications of *electors* to the Lower House are: in respect to age, 25 years; and of property, the payment of indirect national taxes[7] of at least 15 yen. *Members* must be 30 years of age or over, and possess the same property qualification as electors.

The elections of commoners (term, 4 years; salary, 800 yen annually) were held on the 1st day of July. They were

[4] Meiji, or Enlightened Peace, a chronological period, began January 25, 1868.

[5] The total number of nobles of these three orders is 541, divided as follows: counts, 80; viscounts, 356; barons, 105. These figures were published in the statistical manual of the House Dept. in August, 1890. About two-thirds of the former and one-half of the latter, but only one-seventh of the viscounts, are new. The members elected to membership in the Diet must not exceed one-fifth of the totals given.

[6] Viz., all those whose official duties would be in any way interfered with by membership. Auditors, police and revenue officials, and officials of justice are expressly excluded.

[7] Direct national taxes are those on *land* (*chiokusatsu*) and *income* (*kokuzei*).

chiefly remarkable for their limitations. The extent of the franchise, indeed, is such that it is practically a misuse of terms to call the elections general. The total population of Japan is 39,382,200 (exclusive of the Hokkaido, Yezo, Okinawa, and Ogasawarajima, where local government according to the general plan has not yet been organized, and where consequently no elections were held), and of this number there were but 450,365 qualified voters, or one in every 87 (1.14 per cent).[8] The prefectural (*ken*) percentages, however, of which this is a summary, are far from being uniform. At one extreme stands Shiga with 2.3 per cent, and in all 25 of the *ken* have percentages greater than one. Tokyo, however, has only 0.37 per cent, the lowest figure; that is to say, there are less than 6,000 voters out of a total of nearly 1,600,000 inhabitants! Only two other provinces, Nagasaki and Kagoshima, have less than 0.5 per cent. The very low average for Tokyo is accounted for by the comparatively small number there of large land-owners, and by the wide distribution of wealth, excepting a few massive lumps, which is bound up in commerce. There are thousands of well-to-do merchants who do not yet pay 15 yen in direct national taxes.

In evidence of the general interest taken in the elections by those who qualified as voters, only 27,636, or about 6 per cent (6.1), failed to appear at the polls. The percentages for the several *fu* and *ken* vary as widely as from 1 to 11, and on a comparison of *ku* (sub-election districts) an even greater divergence appears. In the second *ku* of Fukuoka *ken*, for example, of 3,984 registered electors only one did not vote, and in two other *ku* (3rd and 4th), containing 3,104 and 1,150 electors respectively, every ballot was cast. In one of the Tokyo districts, on the other hand, the non-voting electors were over 30 per cent (30.5) of the registered list. In Naga-

[8] The appended tables of statistics, A and B, which include these figures, were compiled by K. Suyematsu, M. P., from materials provided by the Dept. of State (Naimusho), and by various *fu* and *ken* offices. Mr. Suyematsu was connected with the Bureau of Prefectures before his election, and therefore able to secure reliable information. I am further indebted to him for comments on the elections, contained in a recent address delivered by him in Tokyo.

saki the 6th *ku* shows 30.9 per cent, the highest figure. It has therefore happened in Japan, as elsewhere, that the interest roused by the elections was less in the large cities than throughout the country districts,— an illustration of the yielding of political opportunity to personal and business cares. But there exists a further explanation of the discrepancy. It is a law of elections that voters shall affix their names and seals to their votes, in order to secure the purity of the ballot. This in effect registers the elector's choice, and the more numerous obstructions in the cities, where the number of candidates was greatest and electioneering excitement ran high, were therefore natural. Men preferred not to vote at all, so as to avoid giving offence, the fear of which need not have been entertained had the ballot been wholly secret. It may be also said that this registering of votes tends to make bribery effective while, on the contrary, secrecy, like that of the "Australian system," destroys the briber's guarantee, and hence should greatly check this sort of corruption.

A noticeable feature of the recent canvass — one that is in a way peculiar to Japan — bears closely upon this question of bribery. By means of a *sufficient consideration*, oftentimes also by intimidation, a candidate would *persuade* men to promise him their support and to record the agreement thereto, emphasizing it with the use of the personal seal. It is said that in case a man gave such a promise as this, under whatever variety of influence, the custom of holding the seal sacred almost as life itself kept him to his recorded pledge, notwithstanding the absence of any express statute against violating it.

A further criticism of the electoral system relates to the provision made for illiterate voters. Every vote must be written on blanks that are provided in the election booths, and an officer or clerk is appointed by the inspector of elections to assist such as cannot read and write. This proved a source of fraud in certain places. Each election was conducted by an inspector in the presence of from two to five wit-

nesses, chosen by himself from among the electors. There was, therefore, nothing to prevent such a choice of witnesses as should permit a manipulation of the ballot in the interests of the inspector's favorite, and the *Guncho* (district or *gun* head-man), who appointed the inspector, and even the *Kencho* (governor), who approved the appointment, might have a hand in the business. Mr. Suyematsu asserts that the ballots of illiterates were so frequently "doctored" by the clerks that much dissatisfaction arose among voters, and with it a demand for authorized police surveillance, though how this would have remedied the evil it is difficult to see. The governors kept *formally* quite clear of the elections, lest they should seem to interfere for partisan purposes. Some cities have urged the passage of a law requiring that the appointment of witnesses shall be approved by a certain number of the electors themselves.

Mr. Suyematsu, in his speech, made some interesting comparisons between election statistics in Japan and elsewhere, to enforce his conclusion that the political zeal of the Japanese is of a high order. In the general elections in France, in 1887, there were only 5 districts in which the percentage of *Kikensha* (men who possessed but did not exercise the franchise) was less than 20. In 16 districts it was between 20 and 25; in 22, between 25 and 30; in 17, between 30 and 35; and in 12, between 35 and 40. In one it was as high as 50.3, the opposite extreme being 18, and the average 31.3. In another year (1885) the figures were somewhat lower,[9] the extremes being 13 and 39, and the average 23. Another example, taken from ancient Athenian history, shows a percentage of Kikensha as high as 80, only about 5,000 citizens voting out of a total of 20,000 or 25,000.[10]

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" 28 " " " " " 15 " 20.
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[10] Lieber's *Political Ethics*, Vol. II, p. 231, note.

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[10] Lieber's *Political Ethics*, Vol. II, p. 231, note.

In France, in 1834, the *Yukensha* (electors) were 171,015, but only 129,211 voted, giving a percentage of Kikensha of 24.5. In 1837 the proportion was similar (one-fourth), or 151,720 Kikensha in a total of 198,836 Yukensha.[11]

Two further examples illustrate American experience. In an election for governor in Connecticut in 1830 the number of actual voters was one-seventeenth of the population. Assuming that at least one-seventh of the people were electors, the proportion of Kikensha exceeded one-half. And when some years ago the question of amending the state constitution was before the people of Pennsylvania, and election excitement was unusually great, only one-sixth of the population voted, while as many as one-fifth were electors, *i. e.*, the percentage of Kikensha was about 15.[12]

In comparison with such figures as these the exceedingly small percentage in Japan, viz., 6.1, is remarkable. Various causes contributed to producing the effect. Chief among them was the novelty of the experience and the comparatively limited number and consequent high grade of the electors, taken as a class.

The Lower House of the Diet has 300 members, each of whom represents on an average 131,278 units of the population, and 307,560 yen of the public revenue. The representation figures range from 1,480,000 in Yamanashi to 107 in Nagasaki. It was determined that one member should stand for about 120,000 people, and so the *gun* (a section of the *ken*) was taken as the most convenient standard for distribution. *Guns* generally have populations of from 100,000 to 150,000. Whenever, in the division, the number fell below 100,000, that section was merged in an adjoining one or more, and it frequently happened that two seats could be assigned to the combination. It is curious that with this method of division the country so fell apart that the number of election districts (25,743 of them obtaining two members each) met exactly the requirements of the general plan.

[11] Lieber. P. 231, note.
[12] *Idem.* P. 231, note.

The House of Representatives is composed of 109 *shizoku* (*samurai*) and 191 *haemin*. In view of the social status of *haemin* previous to the Revolution (1868), it is remarkable that they should approximate two-thirds of the total membership; whereas, on a comparison of their numbers as a class with the number of *shizoku* throughout Japan, the latter with less than two millions (1,976,480) should have only 14 or 15 of the 300 representatives instead of over one-third. The disproportion marks the influence of education and of the *samurai* temper. From certain sections of the country, viz., Aomori, Tottori, Saga, Miyazaki, and Kagoshima, none but *shizoku* were returned; while the members for eight districts in central Japan are all *haemin*, viz., for Saitama, Gumma, Tochigi, Nara, Shizuoka, Yamanashi, Gifu, and Fukushima.

Classified according to birth in the several periods or reigns, into which the last seventy years are divided, 10 members are more than 62 years of age; there are 59 whose ages range from 48 to 61; 40 are from 44 to 47; 99 from 38 to 43; 85 from 32 to 37; and 7 from 30 to 31.

With respect to wealth the members differ widely, as appears from the statistics of taxation. The whole amount of taxes paid by them (local taxes not included) is 37,698 yen, the average being 125.66; but the extremes are 15, as paid by a member from Okayama, and 2,260, as paid by one from Hiroshima. Other sums noted in the table are 1,600, 1,200, 1,100, 1,000. Less than nine per cent (3,205) of the whole is *income* tax. The remainder, 34,492, represents the *land* tax, thus showing the preponderant political influence of agriculturists, and reflecting somewhat the prejudices of a past when merchants as a class were despised. In case a man pays taxes outside his own election district (that in which he has resided for at least one year), he may obtain certificates of the several amounts from the proper local authorities, and be credited with them at his place of registration; but, commonly, an elector of this class paid a sufficient amount in some one place to make such aggregating unnecessary, in which case

it was usually neglected. For the most part, however, landowners possess undivided holdings, or holdings whose parts are not so widely separated as to be included in different districts; and since, further, the land tax is more than 90 per cent of the whole amount, the table is substantially accurate as an index of the wealth of members (as estimated in groups by election districts). It appears that in some places, notably in certain parts of Tokyo, land values had so changed that the "market" prices differed greatly from those fixed by government authority previous to 1880, and registered in the district offices.[13] Taxes are, of course, paid on the latter basis. In consequence of this many who might otherwise have qualified as voters were technically prevented from doing so.

According to statistics published in December, 1888, the number of houses in the Empire (exclusive of those in the Hokkaido, etc.) was 7,652,598. Assuming this sum to be approximately accurate for the present time, each elector of the 450,365 represents 17 houses. The number of houses divided into the total of inhabitants gives 5.1 persons to each. On multiplying this by 17, we have 87 as the average of the population represented by each elector. This agrees with the estimate otherwise arrived at. The number of males (exclusive of those in the Hokkaido, etc.) was in 1888 19,692,258, which divided by 450,365 gives 43.7 for each elector; and on excluding non-adults (males under 20), who in 1888 numbered 8,400,000, the electoral proportion is further reduced to 25. Of invalid votes (*mukōtōhyō*) there were only 2,935 or 0.7 per cent of the total votes cast. That this percentage is so small is mainly due to the presence of clerks in the election booths to assist illiterates. Different opinions prevailed, however, as to what constituted invalidity,

[13] It was enacted in the "Land Tax Reformers Act" of 1873 that revaluations should take place every six years. This provision, however, has not been carried out. The national tax on land is 2½ per cent of the "legal value." The "legal value" was obtained by averaging the returns of land for a period of five years, and the prices for these returns in certain standard localities during that time. The resulting sum, capitalized, became in 1880 the basis of all taxation.

so that the statistics are not altogether satisfactory. For example, one set of election officers threw out votes which gave only a candidate's *family* name, while elsewhere such votes were allowed. Occasionally, blank ballots were cast, and there were cases of attempted repeating. Some illiterate voters, too, distrustful of the honesty of the clerks, took lessons in writing, and then prepared their ballots from memory, and were successful only in swelling the number of votes that were rejected because illegible.

The figures in Table B afford some startling comparisons which illustrate prevailing differences in wealth between different localities, or in the distribution of wealth. Given, for example, a community of well-to-do people all fairly prosperous, but none of them paying the required amount of national tax (15 yen), and there are no electors; while a neighboring *gun* with not half as much wealth in the aggregate, all or most of which is held by one-tenth of the residents, has its quota of electors and its member in Parliament. Such disparity is suggestive of the pocket-borough evil. The following figures are not very exceptional, as may be seen from the table. In the seventh *ku* of Kagoshima *ken* 52 electors chose one member, and in the fifth *ku* 1,288 electors chose one. In Shimane the sixth *ku* with 51 electors, and the second with 1,871, each chose one member. In Ōsaka the second *ku* and the seventh had 278 and 2,923 electors, respectively. They have equal representation. In Kyōtō there were 2,074 electors in the fifth *ku*, and they chose two members. The 2,005 in the fourth *ku* chose but one. In Tochigi 3,633 in the second elected two members, while 3,652 in the first *ku* elected but one. In Kumamoto the fourth *ku* has one member and 2,891 electors, the first *ku* two members and only 2,589 electors. But the figures for Fukushima and Wakayama are still more curious. In the former the third *ku* has 1,822 electors and returned two members to the Diet, while the fifth *ku* has 4,272 electors and but one representative. In Wakayama 970 and 2,370 elected respectively two

and one. It is easy to believe that the governor of Nagasaki *ken* was able to control the elections in the sixth *ku*, where there were only 55 electors, 17 of whom staid at home on election day.

The statistics of occupations are interesting as showing the influence which business pursuits and local politics had upon the elections. Only one in thirty of the members is classified without occupation. In fact, the greater number are credited with several. One, for example, is a lawyer, owner of a newspaper, and president of a local assembly. Another is in the directorate of a bank, is president of a manufacturing company, besides being a farmer and local assemblyman (retired). A third, when elected, was a merchant and the *soncho* (head-man) of his village. The most frequent combinations given are between agriculture and local government. Nearly one-third, or 95, of the members belong in this category, and illustrate again the farmers' social and political prominence historically. The total number of agriculturists is 128, though but 15 are tabled as "agriculturists" only. 245 are more or less occupied with business affairs (as farmers, merchants, etc.), while politics was the sole concern of 45. This number includes under-local officials, members of local assemblies, and also officers of the central government,— *kencho*, *guncho* (who are local officials but appointed from Tokyo), and others. The advantage of connection with local politics may be inferred from the fact that 178 members possessed such connection in one or another form.

Following is a summary of occupations: —

Senate (recently abolished),			4
Fu or *ken* or other local assemblies.	Presidents,	28	
	Vice-Presidents,	12	134
	Members,	94	
Local officials.	Kencho (governors),	1	
	Guncho (*gun* head-men),	37	48
	Others,	10	

Central government,—Officials in the various departments of, (including one cabinet minister, Mr. Mutsu, recently representing Japan at Washington),		17
Bankers.	Presidents, 11; Managers, employees, 6	17
Farmers.		128
In journalism.	Editors, 27; Owners or publishers, 11	38
Merchants.		32
Railways.	Presidents of, 4; Others connected with, 2	6
Officers of other transfer companies connected with railways,		4
Lawyers,		29
Physicians,		3
Manufacturers,		16
Mining enterprise, connected with,		2
General in the army,		1
Painter,		1

To illustrate the extent to which personal influence rather than that of party or of principles involved entered into the canvass, the number of members who were elected outside the districts[14] in which they reside is 31 (one-tenth). In almost every case, however,[15] it was the candidate's birth-place, and he sought the suffrages of clansmen and friends.

Political organizations are already formed, but they lack the stability born of some definite political issue, and experience in the exercise of party functions. Statistical information concerning them is therefore of no great value. The three more important groups of members, as they appear at the opening of the Diet, are the Rikken-Jiyu-to, that of the Radicals, in number 132; the Kaishin-to or Progressist, with a following of 43; and the Taisei-to or Imperialist, numbering 85. The remaining 40 are mostly "Independent." It happens, however, that in matters of political principle the several platforms show little divergence. Liberalism is a pronounced

[14] I have not counted those who resided in districts *adjacent to* the districts where they were elected.

[15] In 27 out of 31.

feature, and its influence may lead to an early fusion of the first two parties with certain of the "Independents" included. It is, however, wisest not to predict. There are features of Japanese political life, such as the old-time clan spirit, waning, perhaps, but still active, which render the situation uncertain. It seems safe to say that religious questions will not prove a source of political disturbance. Attempts to rouse a Buddhist sentiment in the interests of conservatism were not successful. Indeed, thirteen of the members of the Diet are Christians, and one of them has been elected president and another chairman of the most important committee. This is not a favor shown to Christianity, except as religious profession of any sort proves to be no barrier to a man's political advancement.

I have said that personality was prominent in the canvass rather than principle. There was an evident hesitancy to discuss subjects of general interest,[16] such as the tax on land and the expenses of administration,— to stand, in fact, on a rational platform. Electors, also, failed to see that an important difference lay between the Parliament of the nation and the local assemblies with which they were familiar, and, accordingly, in the elections they displayed a similar spirit, viz., to vote for the man himself rather than in view of principles more than locally important which he might promise to uphold. It happened, therefore, that men having the same politics were often in ambitious competition for a seat which fell in consequence to a candidate of another party. The numbers of competing candidates was amusingly large. There were 15 in one of the districts of Tokyo, and for all twelve seats the total was 92. That the desire for election was everywhere quite keen will appear from the fact that 92 seats taken at random were contested by 313 candidates. This leads in effect to minority representation, and it is already appreciated as an evil to be overcome.

The elections were generally free from contentions arising

[16] Not, of course, in the press; this statement refers to the practice of candidates.

TABLE A.

General Division. Fu or Ken.	Number of Ku (Election Districts).	Number of Representatives.	Average number of Inhabitants Represented by each Member.	Average number of Inhabitants Represented by each Elector.	Percentage of Electors amongst Total Population.	Total Population.	Number of Electors (Yukensha).	Number of Non-Voting Electors (Kikensha).	Percentage of Kikensha amongst Yuken-
Tokyo (*fu*).....	12	12	129,871	272.7	.37	1,558,454	5,715	623	1
Kyoto "	6	7	125,012	116.4	.86	875,084	7,515	825	1
Osaka "	9	10	128,115	81.6	1.23	1,281,150	15,699	882	
Kanagawa (*ken*)	6	7	135,395	111.2	.90	947,706	8,521	595	
Hyogo "	10	12	126,818	68.5	1.46	1,521,817	22,233	1,181	
Nagasaki "	6	7	107,486	205.4	.49	752,402	3,663	406	1
Niigata "	9	13	128,106	93.8	1.07	1,665,378	17,748	1,665	1
Saitama "	5	8	131,810	58.3	1.71	1,054,483	18,078	483	1
Gumma "	5	5	143,643	83.7	1.19	718.215	8,580	396	
Chiba "	8	9	130,238	70.4	1.42	1,172,138	16,647	1,005	
Ibaraki "	6	8	124,872	64.2	1.56	998,976	15,543	606	
Tochigi "	4	5	136,868	65.3	1.53	684,341	10,486	533	
Nara "	3	4	124,108	67.8	1.47	496,431	7,321	283	
Mie "	6	7	129,057	52.4	1.91	909,702	17,337	828	
Aichi "	11	11	131,274	77.0	1.30	1,444,011	18,762	1,110	
Shizuoka "	7	8	132,278	90.9	1.10	1,058,226	11,648	398	
Yamanashi "	3	3	148,394	117.0	.85	445,182	3,805	414	1
Shiga "	4	5	133,513	43 2	2.32	667,563	15,456	1,467	1
Gifu "	7	7	129,889	89.9	1.10	909,226	10,113	503	
Nagano "	7	8	138,993	104.9	.95	1,111,946	10,602	623	
Miagi "	5	5	147,326	93.6	1.07	736,628	7,867	374	
Fukushima "	5	7	130,494	69.6	1.44	913,459	13,132	573	
Iwade "	5	5	131,209	140.5	.71	656,047	4,670	279	
Aomori "	3	4	132,593	106.6	.94	530,292	4,974	421	
Yamagata "	4	6	123,649	67.8	1.47	741,896	10,937	549	
Akita "	4	5	136,586	87.2	1.15	682,928	7,836	568	
Fukui "	4	4	149,176	69.2	1.45	596,704	8,628	561	
Ishikawa "	4	6	124,185	77.1	1.30	745,110	9,664	388	
Toyama "	4	5	147,680	69.1	1.45	738,445	10,683	1,047	
Tottori "	3	3	131,444	104.4	.96	394,333	3,777	206	
Shimane "	6	6	115,350	97.4	1.03	692,101	7,108	384	
Okayama "	7	8	132,760	73.7	1.36	1,062,155	14,419	904	
Hiroshima "	9	10	128,911	104.8	.95	1,289,109	12,306	862	
Yamaguchi "	5	7	130,583	157.4	.64	914,083	5,806	634	1
Wakayama "	3	5	124,768	108.1	.92	623,842	5,769	413	
Tokushima "	5	5	135,231	116.8	.86	676,154	5,791	524	
Kagawa "	5	5	132,097	117.9	.85	660,484	5,600	466	
Ehime "	6	7	129,488	125.8	.79	906,414	7,205	280	
Kochi "	3	4	142,469	102.8	.97	569,874	5,542	457	
Fukuoka "	8	9	134,366	71.9	1.39	1,209,295	16,832	160	
Oita "	6	6	130,259	131.6	.76	781,554	5,940	378	
Saga "	3	4	138,356	57.9	1.73	553,423	9,562	748	
Kumamoto "	6	8	130,285	82.6	1.21	1,042,282	12,616	939	
Miyasaki "	3	3	135,942	123.4	.81	407,827	3,304	274	
Kagoshima. "	7	7	140,753	200.0	.49	985,271	4,926	378	
	257	300	131,278 General Average.	87.45 General Average.	1.14 General Average.	39,382,200 Total.	450,365 Total.	27,636 Total.	Gene Aver

Number of Non-Voting Electors (Kikensha).	Percentage of Kikensha amongst Yukensha.	Number of Invalid Votes cast.	Number of Shizoku (Samurai) Elected.	Number of Haemin (Commoners) Elected.	Direct National Taxes Paid by Members of Parliament.					
					Maximum Individual Tax.	Minimum Individual Tax.	Tax on Land.	Tax on Income.	Total Tax on Land and Income.	Average Tax per Member.
					Yen.	*Yen.*	*Yen.*	*Yen.*	*Yen.*	*Yen.*
623	10.9	10	8	4	284.98	19.47	289.86	706.17	996.03	83.00
825	11.0	51	2	5	1,026.42	17.29	1,180.39	202.07	1,382.46	197.49
882	5.6	71	4	6	434.27	16.64	1,087.46	316.27	1,403.73	140.37
505	5.9	61	1	6	283.55	15.05	366.98	16.92	383.90	54.84
1,181	5.3	182	4	8	202.12	17.00	1,168.49	43.49	1,211.98	101.00
406	11.1	21	6	1	61.01	15.70	173.78	31.59	205.37	29.34
1,665	9.4	259	1	12	523.18	15.04	1,429.16	89.11	1,518.27	116.79
483	2.7	185	..	8	356.77	16.05	783.11	61.13	844.24	105.53
396	4.6	64	..	5	143.48	23.61	261.10	32.12	293.22	58.64
1,005	6.0	125	1	8	326.71	24.49	791.07	50.48	841.55	93.51
606	3.9	29	3	5	268.12	15.85	931.68	126.46	1,058.14	132.27
533	5.1	58	..	5	126.28	20.12	255.09	9.43	264.52	52.90
283	3.9	81	..	4	202.85	22.42	337.58	15.07	352.65	88.16
828	4.8	74	4	3	949.79	15.65	1,144.08	87.67	1,231.75	175.96
1,110	6.0	46	1	10	430.45	15.22	2,040.61	111.49	2,152.10	195.65
308	3.4	47	..	8	650.58	17.00	1,682.46	105.36	1,787.82	223.48
414	10.9	37	..	3	396.38	203.62	811.67	86.65	898.32	299.44
1,467	9.5	107	2	3	74.38	15.42	230.15	4.00	234.15	46.83
503	5.9	144	..	7	1,297.74	33.72	2,715.25	150.80	2,866.05	409.44
623	5.9	134	2	6	210.59	15.85	303.06	63.27	366.33	45.79
374	4.8	38	2	3	671.80	35.91	870.84	50.49	921.33	184.27
573	4.4	68	..	7	75.22	17.40	220.68	17.93	238.61	34.09
279	6.0	50	1	4	57.00	16.81	124.18	18.07	142.25	28.45
421	8.4	9	4	..	30.66	19.48	87.61	11.06	98.67	24.67
549	5.0	203	4	2	110.17	15.40	207.62	19.74	227.36	37.89
568	7.2	2	1	4	864.27	68.54	1,597.97	46.15	1,644.12	328.83
561	6.4	66	1	3	362.38	79.40	748.23	18.52	766.75	191.69
388	4.0	42	1	5	250.77	15.28	547.11	11.06	558.17	92.03
1,047	9.8	68	1	4	54.55	15.01	129.85	36.99	166.84	33.37
266	7.0	48	3	..	74.00	20.13	113.34	3.73	117.07	39.02
384	5.4	25	1	5	1,606.18	15.59	3,251.43	182.87	3,434.30	572.38
904	6.3	26	3	5	269.60	15.00	368.33	10.67	399.00	49.88
862	7.0	122	2	8	2,230.56	15.73	2,483.80	104.56	2,588.36	258.84
634	10.9	40	5	2	1,128.57	17.29	1,666.63	96.79	1,763.42	251.92
413	7.2	13	3	2	320.57	16.93	404.93	6.83	411.76	82.35
524	9.0	55	3	2	439.60	21.80	632.81	49.60	682.41	136.48
466	8.3	62	1	4	148.78	24.65	339.21	9.44	348.65	69.73
280	3.9	29	4	3	136.25	15.16	365.54	20.81	386.35	55.19
457	8.2	10	3	1	273.83	16.45	493.44	8.34	501.78	125.45
160	1.0	48	5	4	339.81	16.81	583.43	61.64	645.07	71.68
378	6.4	38	2	4	107.92	15.84	260.73	41.42	302.15	50.36
748	7.8	16	4	..	34.88	16.87	91.24	6.80	98.04	24.51
939	7.4	30	6	2	269.36	16.72	517.51	30.21	547.72	68.47
274	8.3	32	3	..	109.38	16.23	126.78	15.34	142.12	47.37
378	7.7	18	7	..	90.37	15.27	256.02	17.22	273.24	39.03
27,636	6.1	2935	100	191			34,492.28	3,205.79	37,698.07	125.66
Total.	General Average.	Total.	Total.	Total.			Total.	Total.	Total.	General Average.

out of the distinctions of class, a fact which argues for the disappearance of feudal ties, and yet the pronounced *shizoku* representation in certain districts results, it is said,[17] from a desire to regain the place and prestige lost in the Revolution.

Of the newly elected legislators 134 sat formerly in local assemblies. A considerable leaven of experience is therefore brought to this first national parliament, and it is plain, from the several sessions that have already been held, that the members are disposed to guard well their newly gotten prerogatives, and to exercise fully and unawed, by the novelty of the situation, those talents for debate which all Japanese possess. Important questions await consideration,— treaty revision, tariff autonomy, reform of the national expenditures, reduction of the taxes on land,— and the question arises, in view of the rather tremendous circumstances of the case, whether this oriental effort at self-government may not forsake beaten paths and prove as unique historically as it is in its geography.

[17] By Mr. Suyematsu.

TABLE B.

General Division (Fu or Ken).	Sub-Election Districts (Ku).	Number of Electors (Yukensha).	Number of Non-Voting Electors (Kikensha).	Percentage of Kikensha amongst Yukensha.	Number of Invalid Votes Cast.	Number of Members per Ku.
Tokyo (Fu).	1	233	39	16.7	..	1
	2	203	58	28.6	..	1
	3	311	95	30.5	..	1
	4	604	135	22.4	9	1
	5	281	26	9.3	..	1
	6	315	41	13.0	..	1
	7	279	66	23.7	1	1
	8	246	39	15.9	..	1
	9	182	20	11.0	..	1
	10	798	36	4.5	..	1
	11	1,666	38	2.3	..	1
	12	597	30	5.0	..	1
		5,715	623	10.9	10	12
Kyoto (Fu).	1	112	36	32.1	..	1
	2	208	61	29.3	5	1
	3	1,703	198	11.6	22	1
	4	2,005	271	13.5	11	1
	5	2,074	146	7.0	3	2
	6	1,413	113	8.0	10	1
		7,515	825	11.0	51	7
Osaka (Fu).	1	405	69	17.0	..	1
	2	701	158	22.5	3	1
	3	278	59	21.2	..	1
	4	2,041	125	6.1	..	2
	5	2,910	82	2.8	11	1
	6	2,849	149	5.2	4	1
	7	2,923	120	4.1	22	1
	8	1,697	83	4.9	25	1
	9	1,896	37	2.0	6	1
		15,700	882	5.6	71	10
Kanagawa (Ken).	1	287	50	17.4	..	1
	2	2,016	227	6.3	27	1
	3	1,585	119	7.5	13	2
	4	957	43	4.5	6	1
	5	1,589	96	6.0	6	1
	6	2,084	70	3.4	9	1
		8,521	505	5.9	61	7

General Division (Fu or Ken).	Ku.	Yukensha.	Kikensha.	Percentage of Kikensha amongst Yukensha.	Number of Invalid Votes Cast.	Number of Members per Ku.
Hyogo (Ken).	1	437	72	16.5	1	1
	2	3,407	270	7.9	71	1
	3	1,793	59	3.3	19	1
	4	2,603	94	3.6	41	1
	5	1,819	83	4.6	25	1
	6	2,772	77	2.8	6	1
	7	2,609	140	5.4	2	1
	8	3,061	141	4.6	3	2
	9	1,579	82	5.2	6	2
	10	2,153	163	7.6	8	1
		22,233	1,811	5.3	182	12
Nagasaki (Ken).	1	427	58	13.6	..	2
	2	1,455	150	10.3	5	1
	3	737	84	11.4	3	1
	4	844	70	8.3	13	1
	5	145	27	18.6	..	1
	6	55	17	30.9	..	1
		3,663	406	11.1	21	7
Niigata (Ken).	1	2,532	350	13.8	27	1
	2	2,904	150	5.2	90	2
	3	2,152	229	10.2	29	1
	4	1,700	239	14.1	89	1
	5	2,650	208	7.9	9	2
	6	1,204	142	11.8	4	1
	7	1,529	94	6.2	..	2
	8	2,541	172	6.8	4	2
	9	536	90	16.8	7	1
		17,748	1,665	9.4	259	13
Saitama (Ken).	1	3,205	119	3.7	14	1
	2	3,998	80	2.0	67	2
	3	4,809	132	2.7	65	2
	4	5,273	118	2.2	38	2
	5	793	34	8.3	1	1
		18,078	483	2.7	185	8

TABLE B. CONTINUED.

General Division (Fu or Ken).	Sub-Election Districts (Ku).	Number of Electors (Yukensha).	Number of Non-Voting Electors (Kikensha).	Percentage of Kikensha amongst Yukensha.	Number of Invalid Votes Cast.	Number of Members per Ku.
Gumma (Ken).	1	1,980	161	8.1	37	1
	2	2,377	71	3.0	..	1
	3	1,403	61	4.4	7	1
	4	1,847	51	2.8	7	1
	5	973	52	5.3	13	1
		8,580	396	4.6	64	5
Chiba (Ken).	1	2,208	144	6.5	11	1
	2	3,700	129	3.5	10	2
	3	2,663	154	5.8	49	1
	4	1,078	55	5.1	13	1
	5	1,668	164	9.8	23	1
	6	1,860	183	9.8	7	1
	7	2,130	124	5.8	5	1
	8	1,340	52	3.9	7	1
		16,647	1,005	6.0	125	9
Ibaraki (Ken).	1	2,671	89	3.3	..	2
	2	2,008	68	3.4	..	2
	3	2,854	97	3.4	4	1
	4	1,905	98	5.1	14	1
	5	3,303	144	4.4	4	1
	6	2,802	110	3.9	7	1
		15,543	606	3.9	29	8
Tochigi (Ken).	1	3,652	170	4.7	7	1
	2	3,633	179	4.9	40	2
	3	1,574	91	5.8	4	1
	4	1,627	93	5.7	7	1
		10,486	533	5.1	58	5
Nara (Ken).	1	3,118	131	4.2	21	1
	2	3,763	133	3.5	60	2
	3	440	19	4.3	..	1
		7,321	283	3.9	81	4

General Division (Fu or Ken).	Ku.	Yukensha.	Kikensha.	Percentage of Kikensha amongst Yukensha.	Number of Invalid Votes Cast.	Number of Members per Ku.
Mie (Ken).	1	3,303	123	3.7	6	1
	2	4,500	258	5.7	5	1
	3	2,426	78	3.2	15	1
	4	2,393	111	4.6	14	1
	5	2,096	141	6.8	12	2
	6	2,646	117	4.4	22	1
		17,337	828	4.8	74	7
Aichi (Ken).	1	509	105	2.6	..	1
	2	1,914	62	3.2	..	1
	3	2,380	59	2.4	..	1
	4	1,608	114	7.0	31	1
	5	2,292	187	8.2	2	1
	6	2,411	127	5.2	3	1
	7	1,828	186	10.2	..	1
	8	3,072	121	3.9	..	1
	9	1,289	69	5.4	..	1
	10	822	41	5.0	9	1
	11	637	39	6.0	1	1
		18,762	1,110	6.0	46	11
Shizuoka (Ken).	1	1,034	57	5.5	7	1
	2	1,022	56	5.5	3	1
	3	1,474	34	2.3	10	1
	4	2,684	87	3.2	8	1
	5	2,188	41	1.9	..	1
	6	1,536	47	3.1	18	1
	7	1,710	76	4.4	1	2
		11,648	398	3.4	47	8
Yamanashi (Ken).	1	1,968	301	15.3	5	1
	2	970	69	7.1	27	1
	3	867	44	5.1	5	1
		3,805	414	10.9	37	3

TABLE B. CONTINUED.

General Division (Fu or Ken).	Sub-Election Districts (Ku).	Number of Electors (Yukensha).	Number of Non-Voting Electors (Kikensha).	Percentage of Kikensha amongst Yukensha.	Number of Invalid Votes Cast.	Number of Members per Ku.
Shiga (Ken).	1	2,065	193	9.4	18	1
	2	4,355	360	8.3	20	1
	3	5,682	653	11.5	50	2
	4	3,354	261	7.8	19	1
		15,456	1,467	9.5	107	5
Gifu (Ken).	1	1,541	94	6.1	22	1
	2	1,640	88	5.4	2	1
	3	1,479	95	6.4	12	1
	4	2,064	121	5.9	14	1
	5	957	51	5.3	..	1
	6	1,793	91	5.1	83	1
	7	639	53	8.3	11	1
		10,113	593	5.9	144	7
Nagano (Ken).	1	1,746	60	3.4	8	1
	2	1,216	25	2.1	1	1
	3	1,300	67	5.2	6	1
	4	2,443	254	10.6	103	2
	5	1,416	59	5.2	4	1
	6	1,482	101	6.8	8	1
	7	1,269	57	4.5	4	1
		10,602	623	5.9	134	8
Miagi (Ken).	1	1,885	88	4.7	1	1
	2	817	41	5.0	3	1
	3	2,477	106	4.3	5	1
	4	1,870	122	6.5	..	1
	5	818	...	...	29	1
		7,867	357	4.5	38	5
Fukushima (Ken).	1	2,501	173	6.9	8	1
	2	2,049	81	4.0	4	1
	3	1,822	74	4.1	6	2
	4	2,488	87	3.5	50	2
	5	4,272	158	3.7	..	1
		13,132	573	4.4	68	7

General Division (Fu or Ken).	Ku.	Yukensha.	Kikensha.	Percentage of Kikensha amongst Yukensha.	Number of Invalid Votes Cast.	Number of Members per Ku.
Iwade (Ken).	1	1,447	83	5.7	14	1
	2	189	17	9.0	3	1
	3	1,628	108	6.6	29	1
	4	746	43	5.7	2	1
	5	657	28	4.3	2	1
		4,670	279	6.0	50	5
Aomori (Ken).	1	1,467	105	7.0	..	2
	2	2,069	211	10.0	6	1
	3	1,438	105	7.3	3	1
		4,974	421	8.4	9	4
Yamagata (Ken).	1	2,398	55	2.3	40	2
	2	2,823	81	2.9	38	1
	3	4,221	356	8.4	120	2
	4	1,495	57	3.8	5	1
		10,937	549	5.0	203	6
Akita (Ken).	1	1,286	90	7.0	2	1
	2	1,640	113	6.9	..	1
	3	2,059	163	7.9	..	1
	4	2,851	202	7.1	..	2
		7,836	568	7.2	2	5
Fukui (Ken).	1	2,135	69	3.2	16	1
	2	2,706	252	9.3	2	1
	3	2,233	115	5.2	21	1
	4	1,554	125	8.0	27	1
		8,628	561	6.4	66	4
Ishikawa (Ken).	1	2,847	100	3.5	22	2
	2	2,068	61	3.0	8	1
	3	3,450	125	3.6	6	2
	4	1,290	102	7.9	6	1
		9,664	388	4.0	42	6

TABLE B. CONTINUED.

General Division (Fu or Ken).	Sub-Election Districts (Ku).	Number of Electors (Yukensha).	Number of Non-Voting Electors (Kikensha).	Percentage of Kikensha amongst Yukensha.	Number of Invalid Votes Cast.	Number of Members per Ku.
Toyama (Ken).	1	3,873	152	3.9	30	2
	2	925	101	10.9	3	1
	3	2,327	407	17.5	23	1
	4	3,558	387	10.9	12	1
		10,683	1,047	9.8	68	5
Tottori (Ken).	1	1,208	93	7.7	8	1
	2	1,120	90	8.1	18	1
	3	1,499	83	5.7	22	1
		3,777	266	7.0	48	3
Shimane (Ken).	1	1,549	71	4.6	..	1
	2	1,871	109	5.8	3	1
	3	1,799	83	4.6	8	1
	4	829	70	8.4	8	1
	5	1,009	43	4.3	5	1
	6	51	8	15.7	1	1
		7,108	384	5.4	25	6
Okayama (Ken).	1	4,185	345	8.2	6	2
	2	1,573	68	4.3	5	1
	3	2,292	135	5.9	6	1
	4	1,893	117	6.2	5	1
	5	1,162	48	4.1	2	1
	6	1,587	99	6.2	..	1
	7	1,727	92	5.3	2	1
		14,419	904	6.3	26	8
Hiroshima (Ken).	1	993	101	10.1	..	2
	2	823	46	5.6	6	1
	3	1,456	109	7.5	53	1
	4	1,433	83	5.8	4	1
	5	1,863	117	6.3	16	1
	6	1,560	121	7.8	24	1
	7	1,564	90	5.8	6	1
	8	1,275	111	8.7	5	1
	9	1,339	84	6.3	8	1
		12,306	862	7.0	122	10

General Division (Fu or Ken).	Ku.	Yukensha.	Kikensha.	Percentage of Kikensha amongst Yukensha.	Number of Invalid Votes Cast.	Number of Members per Ku.
Yamaguchi (Ken).	1	2,993	331	11.1	5	2
	2	742	98	13.2	3	1
	3	753	82	10.9	8	1
	4	836	78	9.3	14	2
	5	442	45	9.3	10	1
		5,806	684	10.9	40	7
Wakayama (Ken).	1	2,429	137	5.6	3	2
	2	2,370	162	6.8	8	1
	3	970	114	11.8	2	2
		5,769	413	7.2	13	5
Tokushima (Ken).	1	1,471	97	6.6	3	1
	2	1,586	240	15.1	21	1
	3	1,002	64	6.4	14	1
	4	1,342	78	6.8	15	1
	5	490	45	9.2	2	1
		5,791	524	9.0	55	5
Kagawa (Ken).	1	1,325	98	7.4	29	1
	2	1,052	170	16.1	3	1
	3	1,291	58	4.5	25	1
	4	839	75	8.9	5	1
	5	1,093	65	6.0	..	1
		5,600	466	8.3	62	5
Ehime (Ken)	1	2,971	17	0.6	3	2
	2	1,341	66	4.9	8	1
	3	471	32	6.8	..	1
	4	490	56	6.3	7	1
	5	718	48	6.7	..	1
	6	814	61	7.5	2	1
		7,205	280	3.9	20	7
Kochi (Ken).	1	1,651	221	13.4	1	1
	2	2,226	72	3.2	1	2
	3	1,665	164	9.9	8	1
		5,542	457	8.2	10	4

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General Division (Fu or Ken).	Sub-Election Districts (Ku).	Number of Electors (Yukensha).	Number of Non-Voting Electors (Kikensha).	Percentage of Kikensha amongst Yukensha.	Number of Invalid Votes Cast.	Number of Members per Ku.
Fukuoka (Ken).	1	2,013	105	5.2	15	1
	2	3,984	1	0.3	5	2
	3	3,104	..	..	4	1
	4	1,150	..	..	8	1
	5	3,483	5	0.2	3	1
	6	1,283	26	0.2	4	1
	7	1,412	9	0.6	6	1
	8	1,402	14	1.0	3	1
		16,831	160	1.0	48	1
Oita (Ken)	1	1,056	69	6.5	9	1
	2	647	33	5.1	8	1
	3	971	58	6.0	2	1
	4	1,059	55	5.2	13	1
	5	669	37	5.5	4	1
	6	1,538	126	8.2	2	1
		5,940	378	6.4	38	6
Saga (Ken).	1	5,483	559	10.2	10	2
	2	1,628	42	2.6	4	1
	3	2,451	147	6.0	2	1
		9,562	748	7.8	16	4

General Division (Fu or Ken).	Ku.	Yukensha.	Kikensha.	Percentage of Kikensha amongst Yukensha.	Number of Invalid Votes Cast.	Number of Members per Ku.
Kumamoto (Ken).	1	2,589	217	8.4	19	2
	2	1,464	61	4.2	..	1
	3	3,512	184	5.2	..	2
	4	2,891	244	8.4	7	1
	5	1,601	164	10.2	1	1
	6	557	69	12.3	3	1
		12,616	939	7.4	30	8
Miagi (Ken).	1	1,327	128	9.6	16	1
	2	1,401	68	4.9	5	1
	3	576	78	13.5	11	1
		3,304	274	8.3	32	3
Kagoshima (Ken).	1	385	72	18.7	4	1
	2	422	62	14.7	3	1
	3	592	46	7.8	1	1
	4	1,244	57	4.6	3	1
	5	1,288	70	5.4	4	1
	6	943	65	6.9	3	1
	7	52	6	11.5	..	1
		4,926	378	7.7	18	7
Totals,		450,365	27,636	6.1	2,935	300

REVIEWS AND NOTICES.

REPORTS OF BUREAUS OF LABOR STATISTICS.

Fifth Annual Report of the Commissioner of Labor. 1889. Railroad Labor. Carroll D. Wright. Washington. 1890. Pp. 888.

The Fifth Annual Report of the Commissioner of Labor deals with the subject of Railroad Labor. It represents the results of field work from April, 1888, to April, 1889. During this time returns were obtained from sixty corporations, employing 241,910 persons. This represents a trifle over one-third the entire number of railroad employees in the United States; and, as the roads were selected with great care from different sections and classes, the results are fairly representative of the general condition of things.

An investigation of railroad labor has several advantages over an investigation of factory labor. In the first place. there are no private establishments; all are corporations accustomed, to a greater or less degree, to public enquiry into their affairs. Their books are in better shape for such enquiry, and the attempts to resist it are less. There is comparatively little piece-work, which makes the investigation a good deal simpler. There is less fear of giving away trade secrets, or of enabling a rival to figure on the cost of production, than is the case among manufacturers. All these things combine to make the task of the enquirer easier, and the result more trustworthy.

Nearly four-fifths of the railroad employees of the United States are paid at rates between $1.00 and $2.00 per day. The percentages at different rates are as follows: —

Under $1.01,	7 3	per cent.
$1.01- 1.20,	21.7	"
1.21- 1.40,	21.6	"
1.41- 1.60,	15.1	"
1.61- 1.80,	11.4	"
1.81- 2.00,	9.2	"
Over 2.00,	13.7	"

The average daily rate received by all persons was $1.64½; but this, of course, was brought up by a comparatively small number who receive very high rates, for nearly two-thirds of the total number receive less than this average. An examination of the different groups of employees shows that "laborers," switchmen, and telegraph

operators are, as a rule, paid from $1.00 to $1.50 a day; firemen and brakemen mostly about $1.75, the rates varying from $1.50 to $2.00; while the classes receiving more than $2.00 per day are blacksmiths, carpenters, machinists, conductors, and engineers, and also a considerable group of switchmen, especially in the west.

One of the most extraordinary features in the whole situation is the small figure of time employed. "Laborers" are employed on an average less than 100 days in the year; brakemen and firemen a little over 150; telegraph operators, 164; switchmen, 176. Conductors are employed 207 days on an average, and engineers 237. This results from a combination of two causes. Part of it is due to the migratory character of railroad labor, as Colonel Wright expresses it; part to the fact that in some lines of work a considerable number of days of rest are needed. For instance, train crews on the best roads are kept steadily through the year but work only four days in the week, with occasional Sunday duty extra. From 210 to 240 days in the year, to a conductor or engineer, means steady employment, and represents his full annual earning power. On the other hand, the laborer works six days in the week as long as he has a job, and then goes somewhere else. His figures of annual earnings, taken from the books of the company, represent only a fraction of what he really gets. These two causes are so intermingled that it is hard to separate them, and they make the figures of annual earnings somewhat misleading. We give them, nevertheless, for what they are worth.

Occupations.	Total Persons.	Average Earnings.
Baggagemasters (36 roads)	1,260	$394
Baggagemen (18 roads)	1,014	311
Blacksmiths (43 roads)	1,718	467
Brakemen (58 roads)	23,699	212
Carpenters (51 roads)	8,583	330
Conductors (56 roads)	6,134	575
Engineers (55 roads)	5,540	957
Enginemen (15 roads)	1,351	787
Firemen (60 roads)	9,672	337
Flagmen (31 roads)	2,111	244
Foremen (56 roads)	7,086	463
Laborers (58 roads)	90,104	124
Machinists (40 roads)	4,984	431
Masons (28 roads)	874	227
Painters (38 roads)	1,750	348
Switchmen (30 roads)	4,262	264
Telegraph operators (38 roads)	4,216	235

A much more important table is that which shows the wages paid in different sections of the country to different classes of employees.

	New England.	Middle.	South Atlantic.	Cen. Northern.	Northwestern.	Southwestern.	Pacific.
Baggagemasters	$1.78	$1.58	$1.32	$1.46	$1.10	$1.79	$2.00
Baggagemen	1.67	1.46	1.42	1.61	1.49	1.55	1.94
Blacksmiths	2.36	2.06	2.39	2.25	2.67	2.26	3.11
Brakemen	1.80	1.73	1.26	1.86	1.95	1.75	1.96
Carpenters	2.14	1.89	2.10	1.92	2.32	2.14	3.07
Conductors	2.82	2.54	2.58	2.61	2.92	2.85	3.00
Engineers	3.32	3.15	2.91	3.07	3.55	2.79	....
Enginemen	3.24	3.20	1.52	2.27	....	....	....
Firemen	1.89	1.72	1.29	1.79	2.04	1.90	....
Flagmen	1.24	1.16	.89	.97	....	1.02	1.64
Foremen	2.33	1.81	1.66	1.81	1.88	1.78	2.46
Laborers	1.51	1.23	.88	1.21	1.21	1.30	1.87
Machinists	2.23	2.05	2.70	2.25	2.69	2.43	3.00
Masons	2.19	2.44	3.00	2.76	2.54	3.00	....
Painters	2.01	1.88	2.02	1.91	2.42	1.72	2.81
Switchmen	1.78	1.27	1.11	1.53	2.30	2.15	2.20
Telegraph Operators	1.42	1.34	1.59	1.47	1.67	1.38	2.00

It is not surprising to find that the highest wages are paid on the Pacific coast; but it will surprise many readers that the next highest wages, for distinctively railroad labor, are paid in New England. It is interesting to see that while blacksmiths, carpenters, masons, painters, and machinists are paid more per day in the west, baggagemasters and hands, conductors and engineers, on the whole, do quite as well in New England, and railroad laborers very much better.

Amid the many things to praise in the report there are comparatively few to criticise. The worst is probably the comparison of American and English railroad wages. The English wages are from employees' returns. It is always an error to compare employees' returns in one place with employers' returns in another; and in this instance the returns of English wages appear to have been made up with some unfairness. The places where high wages are paid have been carefully excluded, and the low ones carefully selected. For instance, there are no returns from any London terminal station, and only one from an important suburban station. By a curious blunder one really first-class London station is included in the list,

but *no returns at all* are given from it. We are astonished that this did not awaken Colonel Wright's suspicions.

The only other serious mistake we have noted, and that probably an oversight, is the occasional calculations of annual earnings on assumed full time instead of actual time,— for instance, on page 144.

It may have been difficult to use the figures of actual time in the way suggested; in that case it would have been better to compare only the wages per day, and omit the table of annual earnings altogether. It is certainly misleading to speak of the annual earnings of an engineer as $1,000 when, as a matter of fact, he can only earn three-quarters of that amount in steady employment at full regular time.

ARTHUR T. HADLEY.

YALE UNIVERSITY.

INDIANA.— *Second* Biennial Report (Eighth Volume) of the Department of Statistics 1887–88.* Wm. A. Peelle, Jr., Commissioner. Indianapolis. 1888.

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The Department of Statistics of the State of INDIANA has presented to the public in its eighth volume a neat book of about 550 pages, covering a very wide field, but, unfortunately, partaking too much of the nature of an advertisement. The object seems to have been rather the showing up of the attractive features of the state than the collection of simple facts. Although it is an error to speak of this department as one of the State Bureaus of Labor Statistics, it is by no means a fault that this one does not limit its scope to the Labor question. There seems to be no good reason why there should not be a Department of Statistics in each state of the Union, to which the duty of collecting statistics on all matters of importance might be delegated. Vital, criminal, social, economic, and finance statistics might all be gathered in one office, and the corps of statisticians which would spring up in response to the demand thus created would be able so to systematize the work as to make it truly scientific and of inestimable value. By the Commissioner's own confession the Indiana report falls far short of what it might be, and in his preface he asks for legislation to make the submission of returns compulsory. This would be a step in the right direction; but even with such a law, what results could be expected from the expenditure of the paltry sums now appropriated? Indeed, the Commissioner deserves great credit for accomplishing as much as he has with such limited means. Greater liberality in this direction would be approved of, at least by a majority of the intelligent tax-payers in every state.

The method adopted in this report was the collection of semi-official figures from county and town officers, and in some cases less than half of the schedules were returned. It is to be feared that in most of these large allowance ought to be made for the "personal equation," local pride.

The book is divided, not very logically, into four parts: —

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Under the caption "Cities and Towns" a short sketch of each town is given, with information concerning its advantages to settlers. Part I contains "articles" on the following somewhat heterogeneous subjects: Natural Gas, Marriage and Divorce, Paupers and Criminals,

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Strikes (tables taken largely from the National report), the Drought of 1887, Agricultural Statistics, Live Stock, Social Statistics, Economic Statistics, Criminal Statistics, Fruit and Fruit Trees, Railroad Statistics, and Building and Loan Associations. Parts III and IV contain the tables on which these "articles" are based, and are of much more value than the rest of the report.

The IOWA report is devoted to Labor Statistics, but it covers a wide field including wages and cost of living, farms and farm labor, coal miners, women wage-earners, manufactures, stores, the mining industry, strikes and lockouts (1881–87), railroads, taxation, and savings banks. The returns are by no means complete, the limited appropriations in this as in most other states being a great drawback to the work. Some blunders have been made, however, which it is hard to excuse. Too much space is given up to the opinions of individual workingmen on subjects on which their opinions are of questionable value. In many cases in this report the opinion of the Commissioner would be of far more value than the many views he quotes.

Part IX of this report, on Taxation and Assessments, is very interesting and very valuable. The subject is an important one, and the information, although not at all tabulated, is in excellent form for study. Part X, on Taxation in Cities and Towns, is equally good. It would be well if other bureaus would take up these subjects.

In KANSAS the Bureau is ordered to collect Labor and Industrial Statistics, and the fifth report is divided into two parts: —

I. Industrial Statistics.
- Manufacturing Industries.
- Flouring Mills.
- Newspapers.
- Coal Mining.

II. Labor Statistics.
- Wage Tables.
- Working Women.
- Labor Organizations.
- Railroads.
- Street Railways.

The collections from wage-earners were gathered through personal visits, but for the statistics of the first part recourse was had to the mails.

In no case do the returns claim to be complete, but the arrangement and tabulation is creditable. Almost invariably the figures are given for each separate case, many of the tables having been merely

"transcribed from the reports just as they were received." This takes up room, but it is good in that it enables the student to see exactly how the aggregates and averages have been obtained. The tables that follow are a queer combination of ridiculous blunders and strictly scientific methods. To give the "average months in operation" by counties, with 81 returns from Shawnee and only one return from nine others, is absurd enough in itself, but when it is complicated with the fact that in several of the counties only returning two or three industries one was a machine shop open the year round, the other a brickyard operated from four to six months, it becomes foolishness. In the same volume with this, however, we find one of the best classified wage tables that has yet appeared in this country. The table referred to is in the division on "Flouring Mills," and seems to be thoroughly scientific in every respect. Of the same nature is the table on page 181, showing, by classification, the monthly earnings of miners. This latter is the summary of a number of excellent detailed tables. It is a pity that, with so much that is good, there is mixed so much that is faulty.

According to the introduction, the information embodied in the MICHIGAN Report was obtained "not by the blank system, nor by special canvassers, but by the regular office employees of the bureau, who, in person, visited all of the shops and factories enumerated, and secured directly from each workman the facts desired." The work consequent upon this method, of course, limited the scope of the report, but the quality is excellent. The entire book is given up to figures, statistics pure and simple, and but few words are wasted in drawing conclusions. The Commissioner seems to have realized fully that it is his place to collect facts, and that to some one else is left the duty of speculation. Two hundred shops were visited, and returns were obtained personally from 8,838 workmen. The questions asked were: age, nativity, nativity of parents, conjugal condition, number in family, number supported besides wife and children, number of children attending school, number of weeks lost, causes of loss of time, weekly wages, annual earnings, other sources of income, total annual income; is home owned, mortgaged, amount paid on home during year, amount saved aside from payments on home; if renting, monthly rental; if boarding, cost per week; amount of life insurance, etc.; number of years in the United States, etc. The returns are not

complete, but so far as they go they are trustworthy. The tabulation is good. The whole forms a large mass of working material.

The MINNESOTA report opens with a stirring appeal for scientific statistical investigation. Commissioner Lamb appreciates the situation fully, and his introduction is very encouraging reading. "It is time," he says, "that men should understand that original investigation in any field of inquiry cannot be carried on without expense, nor with any degree of success, by novices in that line of effort. It might as well be understood first as last that the business of handling statistical work is destined to become a science just as surely as law, medicine, and theology have become so. The time is coming when quackery in statistical work will be just as reprehensible as quackery in any other professional calling."

Commissioner Lamb's report does not seem to be quite up to the high standard which he himself set, but it is, nevertheless, excellent. Chapter I devotes 143 pages to the subject of School Attendance, covering public and private schools, a criticism of half-time schools, school laws, comparison with foreign schools, truancy, etc. Tables 21 to 26 (pp. 110–147) are in excellent form, and the letters from individuals, although not usually approved of in statistical work, are so well selected and from such well-known authorities as to be of the greatest value. Chapter II, on Child Labor, besides good tables, contains lengthy citations from Col. Wright, and much other good matter. Chapter III, following logically the first two, is on Manual and Technical Training. This part contains a number of illustrations and lists of exercises which, while valuable in themselves, seem out of place here. The tables of workingmen's earnings are fair, but there is little value in the price list of staples, as there is no way of judging the quantities used. The state labor laws are given in full at the end.

Part I of the MISSOURI Report is of almost no value. After reading it through one is surprised, and agreeably so, to find Part II far superior. The figures are not complete,— in fact, they are very incomplete,— but they are valuable as far as they go, and the tabulation is quite satisfactory. The wages are taken from the pay-rolls of the employers, a method more exact than most. The workingmen's budgets, which occupy the last half of the book, are exceedingly interesting and of considerable value.

The second volume of this report is on Mines and Miners, being the report of the State Inspector. Only the first half is interesting to statisticians, the latter half being taken up with lists of companies and the "Record of Inspection." The figures given were reported by the mine operators themselves, and "every effort was made to obtain complete and accurate returns." It is a valuable contribution.

The methods employed by the PENNSYLVANIA Bureau are very antiquated. The first 205 pages of the report are given up to answers to questions as to causes of change in the value of farming land, which, of course, are not statistics. Tables follow this, showing, by townships, the number and acreage of farms, and whether occupied by owner or tenant. A small table on page 224 gives the price of agricultural implements annually from 1870 to 1889 inclusive, following which are long price lists of farm products for a series of years, and lists of transportation rates. The next inquiry, relating to miners' earnings, is the conclusion of last year's report. A praiseworthy attempt has been made to steer clear of the "average" fallacy, but it has not been altogether successful. Building and loan associations have been pretty thoroughly investigated, and the statistics given here are as good as any in the book. There is an "article" on the carpet industry, with numerous pictures and few statistics, and the opinions of workingmen occupy the last sixty-five pages.

FRANK R. HATHAWAY.

NOTES ON PRESIDENT WALKER'S ARTICLE ON STATISTICS OF THE COLORED RACE.

(1) NOTE BY PROF. H. A. NEWTON, YALE UNIVERSITY.

By taking the numbers in Column 2 of President Walker's table, giving the enumeration of the colored population, from 1790 to 1880 (*Publications of the American Statistical Association*, December, 1890, p. 102), and regarding 10,000 as the unit, we may construct a table of first and second differences as follows: —

TABLE I.

Year of Census.	Colored Population.	First Difference.	Second Difference.
1790	76	..	...
1800	100	24	...
1810	138	38	14
1820	177	39	1
1830	233	56	17
1840	287	54	—2
1850	364	77	23
1860	444	80	3
1870	488	44	—36
1880	658	170	126

The irregularity in the column of second differences shows large variations in the decennial increments of a population not subject (at least after 1810) to great changes from immigration or emigration. These variations may be due to actual irregularities in numbers of population, or to errors of counting, or to both. In fact, both causes must operate to some extent to produce the irregularities in Column 2. The numbers of the column do not enable us to ascribe to each cause its due influence, but they do furnish the means of estimating the total amount of the irregularity in Column 2 arising from the combined causes, especially the amount of the great deviation in 1870. Let us construct for this purpose a new series of numbers whose second differences shall increase regularly, the third differences being therefore constant, a series that shall differ as little as possible from the numbers in the second column of the table above. By trial I find that with the first term 75, the first first-difference 27, the first second-difference 7, and the third differences constantly unity, we obtain a fair approximation to the numbers in the column named. Calling the two sets of numbers respectively the *observed* and the *computed*, and adding two columns of differences, and a column of observed-computed, we make the following table: —

TABLE II.

Year.	Observed.	Computed.	First Difference.	Second Difference.	Observed-computed.
1790	76	75	...	..	+1
1800	100	102	27	...	−2
1810	138	136	34	7	+2
1820	177	178	42	8	−1
1830	233	229	51	9	+4
1840	287	290	61	10	−3
1850	364	362	72	11	+2
1860	444	446	84	12	−2
1870	488	543	97	13	−55
1880	658	654	111	14	+4

The numbers in the third column exhibit evidently the general law of growth of the numbers in the second column, if the number for 1870 be left out of account. Compared, then, with a steadily increasing people, the deficiency in 1870, due to defective numeration, and to a real deficiency of population if that existed, is about 550,000.

The signs of the numbers in the last column are (omitting 1870) alternately plus and minus, so that it is not possible to obtain a smoothly increasing series of numbers that will represent Column 2 much better than that in Column 3. This alternation further shows that deductions from growth in intervals of 20 years are much more valuable than those from intervals of 10 years or of 30 years.

To test, however, the possibility of obtaining a better series than Column 3, I assumed an unknown correction to each of the numbers 75, 27, 7, and to the 3rd difference that had been used in computing Column 2. *Fourth differences I assumed as before equal to zero.* Then, by the method of least squares, I computed the most probable values of those unknown corrections. Of course the year 1870 was omitted. The result was a series of numbers a very little, and only a very little, better than those in Column 3 in Table II. The sum of the residual squares was reduced from 59 to 54.5. The resulting number for 1870 was 5,431,000, essentially the same as before.

(2) Note by Hermann Hollerith, Ph.D.

The comparisons heretofore made for the purpose of demonstrating or illustrating the defective enumeration of the colored population at the census of 1870 have been so made as not to eliminate the most

variable factor, *i. e.*, natural increase, which, as we know from the age tables of the censuses of 1870 and 1880, fluctuated greatly during the decades 1860 to 1880, due to variation in the birth rate.

It would seem desirable, therefore, that the comparison be made in such a manner that the birth rate, with its natural fluctuations, be eliminated.

This can most readily be done by means of the age tables, under the assumption that there is neither immigration or emigration of the colored population, or else that these factors counterbalance each other. The survivors of the colored population at one census should be enumerated at the next census as the colored population ten years of age and over.

If we compare in this manner the censuses of 1840, 1850, 1860, 1870, and 1880, we find that —

Of 1000 colored persons enumerated in 1840, 870 survived in 1850.
" 1000 " " " " 1850, 848 " " 1860.
" 1000 " " " " 1860, 794 " " 1870.
" 1000 " " " " 1870, 928 " " 1880.

In comparing the censuses in this way, we eliminate entirely the effect of variations in the birth rate, which we know has fluctuated greatly since 1850. Evidence of this is clear and positive in our age tables. The birth rate was checked during the period of the war, and was abnormally high immediately after the war, and during the decade of 1870 to 1880.

It might be contended that the death rate during the war was abnormally large, and that this would account for the number of survivors from 1860 to 1870 being so low, but, on the other hand, this would not, by any means, account for the fact that, according to the census, 928 out of each 1000 colored population at 1870 survived to 1880, as against 848 from 1850 to 1860.

Again, if we make a similar comparison for the native whites, we find that of each 1000 enumerated in 1870 only 917 were surviving in 1880. According to these figures, it would appear that there was a lower rate of mortality among the colored than among the native whites during the period from 1870 to 1880. This we know is contrary to all careful observation in cities having a large colored population, and a thorough registration of deaths.

There is but one possible explanation of these discrepancies, namely, the defective enumeration of the census of 1870.

To determine, as far as we can from these figures, the probable deficiency of the colored enumeration of 1870, let us compare the total colored population in 1850 with the colored population in 1860, ten years of age and over. We find the former to be 1.18 times the latter. If we compare in the same manner the total colored population in 1840 with the colored population ten years of age and over in 1850, we find them to be in the ratio of 1.15 to 1. In 1880 there were enumerated 4,611,207 colored persons ten years of age and over, which multiplied by the factor 1.18 would show that there should have been 5,400,000 total colored population in 1870, so to have left surviving the above number in 1880, on the assumption that the mortality and the age distribution of the colored population was the same during the decade 1870 to 1880 as in the decade 1850 to 1860. If, however, we apply the ratio obtained from 1840 to 1850, we would have the total colored population of 1870 as 5,300,000. Upon a consideration of the above figures, it would seem that the total colored population in 1870 should have been between 5,300,000 and 5,400,000.

THE BIRTH RATE IN EUROPE DURING THE LAST TWENTY YEARS.

The slight increase of the population of France has lately attracted much attention. A fresh examination of the birth rate by Charles Richet appears in the January number of the *Revue Scientifique*, of which the following is a summary: —

The decline in the increase of the population of France, already noticeable at the beginning of the century, continues to increase each year. During the last ten years it has grown so marked that no little uneasiness has been aroused by it. M. Richet does not attempt to smooth over this fact, or to reassure people by denying its validity. He simply compares the condition of France with that of other countries, and shows that there is a general demographic phenomenon, since, in all the principal countries of Europe, for several years past, the birth rate has shown a tendency to decrease.

For this purpose he takes the bare figures, that is, the number of births per 1000 inhabitants. In order to be thorough it would be necessary to consider other facts, such as not only the total population, but the households where the women are between 20 and 45

years of age. For the sake of simplicity, however, he studies only the rough birth rate computed with reference to the population. It is needless to add that these figures furnish only one of the elements which cause the growth of a population; for emigration reduces it, immigration adds to it, and death decreases it.

Increase of births is only one of the factors in the growth of a population, and he who considers this alone can know only a part (the most important part it is true) of the conditions of its increase. Omitting Spain and Russia, for which there are no trustworthy figures, an examination is made of the statistics of France, England, Scotland, Belgium, Germany, Austro-Hungary, and Italy. The results of the several calculations are given in the following table: —

Year.	France.	Germany.	Scotland.	Austria.	Hungary.	England.	Belgium.	Italy.
1873	26.1	41.0	34.7	39.3	42.0	37.8	33.5	37.5
1874	26.2	42.1	35.0	39.1	42.0	37.5	33.5	36.0
1875	26.0	43.0	35.6	38.8	44.0	38.0	33.7	38.5
1876	26.2	42.6	35.5	38.9	43.7	37.5	34.5	40.5
1877	25.5	41.8	36.0	38.2	43.5	38.8	34.0	38.0
1878	25.2	40.0	35.9	37.8	43.0	37.8	33.2	36.8
1879	25.1	40.0	34.8	38.0	45.0	36.7	33.0	38.6
1880	24.5	39.5	34.2	37.2	43.5	36.3	32.2	34.8
1881	24.2	39.0	33.6	38.0	43.8	35.8	32.8	39.5
1882	24.8	38.8	33.5	38.8	45.0	35.3	33.0	38.2
1883	24.7	38.5	33.0	38.0	44.9	33.8	32.2	38.2
1884	24.6	38.5	33.6	38.6	47.0	33.2	32.1	39.9
1885	24.4	38.5	32.5	37.8	47.0	32.6	31.8	38.8
1886	24.1	38.4	32.4	38.4	47.5	32.5	31.2	37.6
1887	23.7	38.6	31.4	38.8	47.0	31.6	30.9	39.5
1888	23.2	....	30.6	38.7	....	31.0	....	36.4

If we take the average for the years 1873, 1874, and 1875 and compare it with the average for 1886, 1887, and 1888, we have —

	1873–1875.	1886–1888.	Difference.
France	26.1	23.7	2.4
England	37.7	31.7	6.0
Scotland	35.1	31.5	3.6
Austria	39.1	38.6	0.5
Hungary	42.7	47.2	+4.5
Germany	42.0	38.5	3.5
Belgium	33.6	31.1	2.5
Italy	37.3	37.8	+0.5

By taking the absolute numbers of births since 1873, it is seen that the maxima do not fall in the later years. So, in proportion to the population the birth rate has not increased, as the total number of births has diminished.

The following table shows the year in the period considered of the maximum number of births in the different countries of Europe: —

	Maximum No. Births.	Year.
France	966,682	1876
England	906,750	1884
Scotland	129,041	1884
Austria	915,702	1888
Hungary	773,255	1886
Germany	1,831,218	1876
Belgium	185,069	1884
Italy	1,195,000	1887

We see from this that, although the countries of Europe have not lost in population, and still continue to increase, the maxima of births did not occur during the last year, *i. e.*, the year of greatest population, as one might have been led to expect. But the first table is more instructive. If Hungary is omitted where the births are increasing, the cause of which we do not know, and Austria, where since 1881 the annexation of Bosnia and Herzegovina has notably changed the demographical conditions, it is seen that the number of births in France, England, Germany, Scotland, and Belgium decreases with perfect regularity from 1877 to 1888.

Diminution of Birth Rate per 1000 Inhabitants.

Year.	France.	England.	Scotland.	Germany.	Belgium.
1878	0.3	1.0	0.1	1.8	0.8
1879	0.1	0.9	1.1	0.0	0.2
1880	0.6	0.4	0.6	0.5	0.8
1881	0.3	0.5	0.6	0.5	+0.6
1882	+0.6	0.5	0.1	0.2	+0.2
1883	0.1	1.5	0.5	0.3	0.8
1884	0.1	0.6	+0.6	0.0	0.1
1885	0.2	0.6	0.1	0.0	0.3
1886	0.3	0.1	0.1	0.1	0.6
1887	0.4	0.9	1.0	+0.2	0.3
1888	0.5	0.6	0.8	.....	.....
Average	0.2	0.7	0.5	0.3	0.3

In Italy there is evidently a similar movement, but it is very irregular. Although the errors from one year to another may be considerable, it is probable that the figures are quite exact, because of the extreme care with which Italian statistics are collected.

According to M. Richet there can be no doubt that the decrease in the number of births is due to voluntary action. It is probable that the most advanced people in civilization are most responsible for the decrease. Yet, in general, M. Richet regards France (with Belgium), England (with Scotland), and Germany as standing at the head of European civilization; and in these three nations the birth rate since 1877 has greatly decreased,— with this difference, however, that England and Germany can permit it to diminish still much more without having the death rate exceed the birth rate, while in France, where the latter rate is very feeble, the time is rapidly approaching when the number of deaths will exceed the number of births.

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UNITED STATES CENSUS BULLETINS.

No. 16. Dec. 13, 1890. *Population of the United States by States and Territories: 1890.* Pp. 10.

This gives the official count of the population as 62,622,250, correcting the rough count bulletined in No. 12. A further discussion of the reasons for the apparent reduction in growth of population is introduced.

No. 17. Dec. 16, 1890. *Preliminary Statistics of Education for Louisiana, New Hampshire, Wisconsin, various cities, and the Church of Jesus Christ of Latter-Day Saints.* By James H. Blodgett. Pp. 10.

The statistics presented in this bulletin are derived from two independent sources: information obtained by the enumerators and information from the school authorities. The following table exhibits the gain or loss of population and of enrollment in public schools, over 1880, in percentages: —

	Louisiana.	New Hampshire.	Wisconsin.
Gain of population, ...	19.01	8.51	28.23
Gain of enrollment, ...	53.52	—7.51	16.97

The pupils attending public, parochial, and private schools in 1890 are thus compared: —

	Louisiana.	New Hampshire.	Wisconsin.
Public, ...	124,370	59,813	350,342
Parochial, ...	7,478	4,940	53,772
Private, ...	17,627	2,603	5,176

The last table shows that the schools maintained by the Mormons in Arizona, Idaho, and Utah have a total of 96 teachers with 5092 pupils.

No. 18. Dec. 26, 1890. *Statistics of Churches.* By Henry K. Carroll. Pp. 26.

The present religious census is confined to the following points: —

1. Location of congregations.
2. Number of congregations, including chapels, missions, etc.
3. Number of ministers.
4. Number of church edifices, including all halls used as places of worship.
5. Value of church property.
6. Number of members or communicants.

The present bulletin affords statistics for only 14 out of the more than 140 denominations in the United States, upon which a report will finally be made. The following summary indicates the denominations covered: —

Denominations.	Number of Organizations.	Church Edifices.	Seating Capacity.	Hall, etc.	Seating Capacity.	Value of Church Property.	Communicants or Members.
United Presbyterian Church...	866	831	264,298	50	5,530	$5,408,084	94,402
Church of the New Jerusalem..	154	87	20,810	70	7,165	1,386,455	7,095
Catholic Apostolic Church.....	10	3	750	7	350	66,050	1,394
Salvation Army.....	329	27	12,055	300	86,801	37,350	8,662
Advent Christian Church	580	294	80,286	281	34,705	465,605	25,816
Evangelical Adventists.....	30	22	5,855	5	775	61,400	1,147
Life and Advent Union	28	7	2,250	19	1,830	16,790	1,018
Seventh-Day Baptists.....	106	7	21,467	18	575	264,010	9,123
Seventh-Day Baptists (German)	6	3	1,960	1	....	14,550	194
General Six Principle Baptists.	18	13	3,600	4	400	19,500	937
Christian Church, South.....	143	135	46,005	8	700	137,000	13,004
Schwenkfeldians	4	6	1,925	...	....	12,200	306
Theosophical Society.....	40	1	200	38	1,115	600	695
Brethren in Christ.....	63	34	13,605	24	980	57,750	2,080

It is a curious fact that Michigan with 1,099 ranks first in members of the Salvation Army; Illinois has 922, Pennsylvania 772, Massachusetts 656, Ohio 655, and New York 615. The county tabulation of Michigan shows that the membership of this sect is fairly well scattered throughout the State.

No. 19. Dec. 30, 1890. *Vital Statistics of the Jews in the United States.* By John S. Billings. Pp. 19. Diagrams, 4.

This presents partial results of an inquiry made of about 10,000 Jewish families, including 60,630 persons. The schedules furnished were as a rule from families who had been in the United States five or more years. The following are some of the social facts deduced: 1. The proportion of males to females among the Jews was larger than in the general population in 1880, being 109.53 males to each 100 females as against 103.57 to 100 in the general population in 1880. 2. The proportion of children under five years of age is less than it is in the average white population in the proportion of 9 to 13, while from five to fifteen years of age it is greater in the proportion of 29 to 23. 3. Among the males the proportion of those engaged in commercial occupations is very large. Of the 18,115 males reported, but 383 were engaged in agricultural pursuits. 4. The marriage rate is very low, only 7.4 per 1000. 5. The average number of children born to each of the mothers was 4.66. The mothers who were born in the United States average only 3.56 children each, as against 5.24 for those born in Germany, 5.63 for those born in Russia and Poland, 5.27 for those born in Hungary, and 5.44 for those born in Bohemia, indicating a diminished fertility in those women born in this country. 6. The death rate was 7.11 per 1000, very low as compared with the general death rate. 7. The population affected with disease Dec. 31, 1889, was 10.17 per 1000.

No. 20. Jan. 5, 1891. *The Anthracite Coal Fields of Pennsylvania.* By John H. Jones. Pp. 13.

Shows the location of the anthracite fields, with districts, mines, and production for 1889; also the initial lines of transportation, shipments by decades, production by counties, and general distribution of product. A complete directory of anthracite colleries is added.

No. 21. Jan. 15, 1891. *Population of New Hampshire by Minor Civil Divisions.* Pp. 4.

It is shown that the population of the state has increased from

346,991 to 376,530, or 8.51 per cent. Three-fifths of all the towns, however, have less population than in 1880,— a decrease which is perhaps confined to the smaller agricultural towns. Most of the towns with a population between 1000 and 1500 have lost population. In commenting upon these tendencies, the *Nation* in its issue of January 29th presents this table: —

Date of Census.	Population.			Percentage of Total Population.		
	Of 35 towns having upwards of 2,000 inhabitants each in 1890.	Of 69 towns having between 1,000 to 2,000 inhabitants each in 1890.	Of 145 towns having less than 1,000 inhabitants each in 1890.	In towns over 2,000.	In towns between 1,000 and 2,000.	In towns under 1,000.
1890	207,455	93,352	75,723	55.10	24.79	20.11
1880	107,338	94,601	85,052	48.23	27.26	24.51
1870	137,440	92,314	88,555	43.18	29.00	27.82
1860	126,235	97,815	102,020	38.71	30.00	31.29
1850	113,506	97,628	106,842	35.69	30.71	33.60

No. 22. Jan. 20, 1891. *Distilled Spirits Consumed in the Arts, Manufactures, and Medicine.* Pp. 9.

This is a preliminary report for the year 1889. The total consumption of each form of distilled spirits by states is compiled from the returns of wholesale druggists and manufacturers, eleemosynary institutions, and retail apothecaries. The consumption amounted to 10,976,842 proof gallons. This is the first complete estimate yet made in the United States. Of this total, alcohol is represented by 6,745,152 gallons. A special attempt was made to obtain facts in regard to the use of alcohol as a beverage; and it is stated that the quantity thus consumed is larger than is supposed. About 15 barrels of alcohol are daily consumed in New York City for this purpose, used especially by a certain foreign element of the population.

No. 23. Jan. 21, 1891. *Areas of States and Counties.* Pp. 14.

The geographer, Henry Gannett, reports that the areas of the States and Territories are identical with those published by the Tenth Census, excepting as they have been modified by the formation of the Territory of Oklahoma; division of Dakota into North and South

Dakota; and the transfer of a small part of South Dakota to Nebraska. The areas of counties have been examined and revised. In particular, changes have been made in accordance with the state geological survey of New Jersey, and returns published by the Department of Agriculture of Kansas.

No. 24. Jan. 24, 1891. *Population of Massachusetts by Minor Civil Divisions.* Pp. 6.

The statistics here presented are fully covered in the article of Hon. Horace G. Wadlin, published in this number of the *Publications.*

No. 25. Jan. 29, 1891. *Statistics of Indians.* By Thomas Donaldson, special agent. Pp. 14.

This contains statistics of Indians residing in the United States, tabulated according to sex in the several states; ration Indians; taxed or taxable; and those living on or off reservations. The total number of Indians, exclusive of Alaska, is 249,273. They are classified as follows: —

Indians on reservations (not taxed or taxable)	133,382
Five civilized tribes (Indians and colored)	66,289
Pueblos, ...	8,278
Six nations, and others in New York, ...	5,304
Eastern Cherokees in North Carolina, ...	2,885
Self-sustaining, counted in general census, ...	32,567
Prisoners of war (Apaches)	384
In state or territorial prisons, ...	184
	249,273

Of the reservation Indians there has been a decrease of 1121 as compared with the Commissioner's report of 1889. They are decreasing from natural causes. Rations are issued to 34,675 Indians; of these 12,183 are in South Dakota. On the reservations 98,707 are self-supporting. Of the 32,567 taxed or taxable (self-sustaining) Indians 10,263 are in California; 6991 in Michigan, 3404 in Nevada, and 2899 in Washington. This accounts for three-fourths. It is announced that the report upon the condition of the Indians will soon be printed.

No. 26. Jan. 30, 1891. *Coal-mining Industry of Maryland in 1889.* By John H. Jones. Pp. 6.

Shows the districts, mines, production, and shipments of coal, with a complete directory of the collieries. The total production in 1889 was 2,939,715 short tons, valued at 85.6 cents per ton at the mines.

In 1880 it was valued at $1.16 a ton. The output fell off in 1889, owing to lack of transportation facilities due to abandonment of Chesapeake & Ohio Canal.

No. 27. Jan. 30, 1891. *Coal-mining Industry of Alabama in 1889.* By John H. Jones. Pp. 6.

This bulletin is of interest as showing the great increase of the coal output in Alabama since 1880. In 1889 it was 3,378,484 tons as compared with 323,972 in the former year. A directory of collieries is given.

No. 28. Jan. 28, 1891. *Freight Traffic on the Great Lakes.* By Henry C. Adams. Pp. 21.

This bulletin represents the commerce of the Great Lakes for 1889, excepting the coastwise trade between Canadian ports. It is noted that the chief point of interest in the exhibit is that three commodities — coal, iron ore, and lumber — comprise 75 per cent of the total cargo tonnage of the lakes. If we add corn, wheat, and mill products, less than 10 per cent is left. The chief characteristic of the lake commerce is its simplicity. The total cargo tonnage in 1889 (exclusive of Canadian coastwise trade) was 27,460,260 tons. It should be observed that this volume is not measured as in the case of foreign commerce by taking the aggregate of receipts and shipments, but by taking only one of these,— the larger one for each port. It is impossible to get absolutely accurate statistics here, for from the returns it appears that the total receipts exceed the total shipments 2.58 per cent. For the total movement of traffic Chicago is credited with 15.59 per cent; Buffalo, 13.14 per cent; Escanaba, 7.08 per cent; and Cleveland, 7.07 per cent. The tonnage in all the detailed tables is analyzed into four classes,— products of agriculture; products of mines and quarries; other products (animal products and lumber) and manufactures and miscellaneous merchandise. The total ton mileage on the Great Lakes for 1889 is reckoned as 15,518,360,000 ton miles as compared with the aggregate ton mileage of railways for the year ending Jan. 30, 1889, of 68,727,223,146. The lake tonnage was therefore 22.6 per cent of the railway tonnage. Statistics are also added showing the freight tonnage which passed through Saint Mary's Falls canal in the year ending June 30, 1890. The statistics for this bulletin were collected by Mr. Charles H. Keep.

No. 29. Feb. 4, 1891. *Transportation. Changes in Floating Equipment on the Great Lakes since 1886.* Pp. 10.

This bulletin shows the radical changes which have taken place in the class of vessels used for transportation on the Great Lakes, and also the increase in the tonnage and valuation. The increase is as follows: —

	1886.	1890.
Net tonnage,	634,652	826,360
Valuation,	$30,597,450	$58,128,500

The substitution of steam for sailing vessels is rapidly progressing. The comparison is as follows: —

	1886.	1890.
Steam tonnage,	324,885	523,702
Sailing tonnage,	309,767	302,658

In the opinion of the special agent, Henry C. Adams, "the facts indicate that a new factor is being introduced into the problem of transcontinental transportation." The facts show that the steam vessels are of a constantly increasing size, and that the "traffic of the Great Lakes is rapidly coming under the control of companies having at their command large capital." The larger part of this bulletin is compiled from *Lloyd's Inland Register.*

No. 30. Feb. 11, 1891. *Alaska, Statistics of Population. 1890.* Pp. 9.

The population of Alaska is stated to be 21,929, with a possible increase of 8400 when further returns from the interior are received. Detailed statistics are furnished only for the First District, which includes about one quarter of the total population. For this district data are furnished in regard to school attendance, nativity, color, and sex of persons of school age; distribution of native tribes; number who are able to read and write and speak English; and numbers of males of voting age.

No. 31. Feb. 14, 1891. *Convicts in Penitentiaries. 1890.* By Frederick Howard Wines.

The total number of convicts in penitentiaries June 30, 1890, is reported at 45,233. This gives a ratio of convicts to the population of 722 to million as compared with 709 in 1880. This total does not include felons who are imprisoned in county penitentiaries, or even those felons which in some states are confined in houses of correction or jails. This bulletin therefore affords only an approximate

indication of the numbers of convicted felons. In respect to color the convicts are divided as follows: —

White, ...	30,546
Negroes, ...	14,267
Chinese, ...	237
Japanese, ...	3
Indians, ...	180

Of the 30,546 white convicts 23,094 are native born. A further analysis shows that the foreign population of the country constitutes, directly or indirectly, in the persons of the foreign born or their immediate descendants considerably more material for state prisons than the entire native population, the difference being represented by 1009. Of the penitentiary convicts 1791 are women, or less than 4 per cent as compared with 4.5 per cent in 1880. The states in which there has been both an absolute and relative decrease in the number of the convicts are Maine, New Hampshire, Vermont, Michigan, Alabama, Mississippi, Nevada, and Wyoming.

No. 32. Feb. 24, 1891. *Distribution of Population in Accordance with Mean Annual Rainfall.* By Henry Gannett. Pp. 4.

Three-fourths of the population inhabit the region in which the annual rainfall is between 30 and 50 inches. A table is published showing the percentage of the population found in each grade of rainfall in 1870, 1880, and 1890, and the density of population in each grade at the same period.

No. 33. Feb. 25, 1891. *Distribution of Population with Reference to Mean Annual Temperature.* By Henry Gannett. Pp. 4.

The mean annual temperature of the United States is 53 degrees. More than half the population live under a temperature between 45 and 55 degrees. The most rapid proportional increase in population in the past twenty years has been in the regions where the temperature was either below 40 degrees or above 75 degrees,— that is, the extremes.

No. 34. Feb. 26, 1891. *Centre of Population: 1890.* By Henry Gannett. Pp. 4. Maps 2.

The method of determining the centre of population is described, and a table and two maps are given showing the position of this centre at each census period since 1790. During the past decade it has moved northward and westward 48 miles. The northward movement is due to the development of the cities of the northwest and Wash-

ington, and increase of population in New England. The centre is now 20 miles east of Columbus, Indiana. The centre of the area of the United States, excluding Alaska, is in northern Kansas.

No. 35. Feb. 27, 1891. *Irrigation in Arizona.* By F. H. Newell. Pp. 8.

This is the first report ever published in connection by the census department on the subject of irrigation. A little less than one-tenth of one per cent of the total area of Arizona is irrigated for raising of crops. The average cost of water right was $7.07 per acre; the selling price placed upon this by the farmer was $12.58; and the average annual cost for water was $1.55 per acre.

No. 36. February 28, 1891. *Statistics of Education. Arizona, California, Connecticut, District Columbia, Maine, Maryland, Massachusetts, Montana, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Vermont, Virginia, Wyoming, and eighty-three Cities.* By James H. Blodgett. Pp. 27.

This is a continuation of the census work outlined in Bulletin 17. There is a brief discussion of the elements of error which enter into educational statistics, followed by table for each state. Maine, New Hampshire, and Vermont show a loss of enrollment.

No. 37. March 7, 1891. *Population by Counties. North Atlantic and South Atlantic Divisions.* Pp. 7.

This Bulletin is interesting in its showing the decrease or increase of population of the several counties in the states included. Although all the northern states show some increase, the gain in some regions has had to overcome decided losses in other sections. For example, 7 of the 16 counties of Maine show a loss. Rhode Island, Connecticut, and West Virginia are the only states in the Atlantic division which show a positive gain in every county.

No. 38. March 10, 1891. *Viticulture. Statistics of Grape Growing and Wine Production in the United States.* By H. Gardner. Pp. 11.

This represents the partial results of the first special census investigation of the extent and value of the grape, raisin, and wine industries of the United States. These industries represent a value of plant of $155,000,000, giving employment to 200,780 persons. The tables show the area and production of vineyards and the capital invested, with description of the wines produced in the different sections of the country.

REPORTS OF STATE BOARDS OF CHARITIES AND CORRECTIONS.

Twenty-fourth Annual Report of the New York State Board of Charities. Transmitted to the legislature Feb. 5, 1891. Pp. 74.

This is one of the best arranged state reports of charities. The statistical tables show the value of property held by the various charitable, correctional, and reformatory institutions of the state; the budget for 1890; and the number of persons in the several institutions. The population of these beneficiaries is thus classified: —

Classes of Inmates.	October 1, 1890.	October 1, 1880.
Insane	16,022	15,538
Idiotic and feeble-minded	1,387	1,330
Epileptic	482	584
Blind	694	657
Deaf	1,329	1,328
Dependent children	23,289	20,949
Juvenile offenders	4,610	4,765
Reformatory prisoners	1,102	944
Disabled soldiers and sailors	1,023	973
Hospital patients	4,118	3,782
Aged and friendless persons	6,946	7,007
Ordinary poor-house inmates	9,893	9,980
Total	70,895	67,781

The number of insane in the care of the various asylums, including poor-houses and private asylums, has steadily increased: —

	Males.	Females.	Total.
1880	4,211	5,326	9,537
1885	5,763	6,944	12,707
1890	7,505	8,517	16,022

The value of the property held amounted to $64,432,000 Oct. 1, 1890, and the total expenditure for the year to $16,349,000. This is nearly double the sum expended in 1880.

Twenty-second Annual Report of the Board of State Charities and Corrections of Rhode Island, 1890. Pp. 142.

There is no summarized table in this report showing the population of charitable and correctional institutions, — a defect which might easily be remedied to great advantage for the public. From the detailed reports it would appear that the number of inmates of the work-house

and House of Correction increased slightly during the year. In analyzing the causes of commitment the report observes that "how much of the variation from year to year in the numbers of certain classes of offenders committed is due the greater or less prevalence of offences, and how much to varying degrees of activity in arresting the offenders, cannot be known." The number of insane in the state asylum is reported as follows: —

	Men.	Women.	Total.
Jan. 1, 1885	165	149	314
" 1890	231	262	493
" 1891	238	277	515

Here again great care is necessary in drawing deductions from these statistics since there has been a change in the method of commitment. The number of inmates in the State Almshouse has decreased from 255 to 236; and in the Prison from 133 to 105. There was also a smaller number of commitments in the Industrial Schools.

Twelfth Annual Report of the State Board of Lunacy and Charity of Massachusetts. January, 1891. Pp. 205, lxxxiv.

This includes reports, with statistics, of the superintendent of in-door poor, of out-door poor, and the inspector of institutions.

The following table shows the change in the insane population since 1875.

	Increase of Total Population. Per cent in 5 Years.	Known Insane.			
		According to Census.		Under State Supervision.	
		Numbers.	Increase. Per cent in 5 Years.	Numbers.	Increase. Per cent in 5 Years.
1875	13.29	3,637	36.62	2,722	21.11
1880	7.69	5,127	40.96	3,724	36.81
1885	8.92	5,263	2.65	4,543	21.99
1890	15.28	.....	.....	5,652	24.41

The leading assigned causes for insanity remained the same. Intemperance and hereditary predisposition are the leading causes. In the 218 almshouses of the state there were 4582 inmates April 1, 1890. The report shows that the average number of the poor throughout the state receiving their full support was 8629, and partial support 15,337, making a total of 22,125. The net cost was $1,805,641. There has been a continuous decrease in the number since 1885. There are interesting summary tables showing the comparative and mean age, occupations, and civil condition of the insane.

Eleventh Biennial Report of the Board of State Commissioners of Public Charities of Illinois, 1888–1890. F. H. Wines, Secretary, Springfield. 1890. Pp. 322.

There are eleven state charitable institutions of which detailed reports are made. There are four hospitals for the insane, an institution for the education of the deaf and dumb, one for the blind, an asylum for feeble-minded children, a sailors' and soldiers' home, a soldiers' orphans' home, an eye and ear infirmary, and a reform school. The following table exhibits the population, expenses, income, and cost for 1875 to 1890: —

	Gross Ordinary Expenses.	Income not from State.	Cost to State.	Average Number.	Per Capita Cost. Cents omitted.	
					Gross.	Net.
1875	$373,998	$52,026	$321,972	1,795	$250	$215
1876	488,791	65,019	424,771	2,064	237	205
1877	482,071	51,940	430,130	2,074	231	207
1878	557,558	44,450	513,107	2,482	224	206
1879	551,214	43,498	507,715	2,707	202	187
1880	617,075	53,877	563,198	2,926	210	192
1881	655,861	58,694	597,166	3,135	209	190
1882	687,155	66,169	620,986	3,209	214	193
1883	714,421	62,552	651,869	3,471	205	187
1884	741,040	68,473	672,567	3,702	200	181
1885	864,329	65,137	799,191	4,444	193	179
1886	960,705	93,010	867,695	5,093	188	170
1887	1,014,018	78,739	935,279	5,230	180	165
1888	808,550	68,025	740,524	5,930	181	166
1889	1,081,773	76,156	1,005,617	6,024	179	166
1890	1,081,651	85,050	996,601	6,196	174	160
Total...	$11,680,218	$1,031,822	$10,648,396	3,786	$197	$180

Fourth Biennial Report of the State Board of Supervision of Wisconsin Charitable, Reformatory, and Penal Institutions for the two years ending Sept. 30, 1890. Madison. 1891. Pp. 239.

The average population cared for in the two insane hospitals, schools for the deaf and blind, industrial school, prison, and state public school in 1890 were 2576. A comparison of the periods 1874–81 and 1882–90 shows that there has been no great increase except in the prison.

	1874–81.	1882–90.
Insane hospital, ...	864	1110
School for deaf, ...	146	194
" " blind, ...	66	70
" " boys, ...	359	334
State prison, ...	282	430

HEALTH AND VITAL STATISTICS.

Forty-eighth Report to the Legislature of Massachusetts Relating to the Registry and Return of Births, Marriages, and Deaths for the year ending Dec. 31, 1889, together with Returns of Libels for Divorce and the Returns of Deaths Investigated by the Medical Examiners. Editorial remarks by Samuel W. Abbott, M.D. Boston. 1890.

The changes in the marriage, birth, and death rates since 1850 are indicated in the following table: —

Year.	Marriages per 1000.	Births per 1000.	Deaths per 1000.
1851–55	11.7	28.8	18.7
1856–60	9.8	29.5	17.9
1861–65	4.3	25.5	20.7
1866–70	10.5	26.1	18.2
1871–75	9.9	27.6	20.8
1876–80	8.0	24.8	19.2
1881–85	9.3	25.1	19.8
1886	9.0	25.4	18.6
1887	9.5	25.8	19.8
1888	9.3	25.9	19.9
1889	9.4	26.2	19.2

This indicates that the excess of birth rate over death rate is gradually diminishing, although the excess is somewhat greater since 1885 than in the half-decade immediately preceding. A very complete table is presented on page 240 of the Report of similar rates for seventeen foreign countries, from which it appears that in the period 1861–80 Massachusetts had the lowest birth rate; that its death rate was the lowest, save Norway and Sweden; while its marriage rate was exceptionally high, that of Hungary alone exceeding it. The same comparative characteristics are in the main true for the years 1887 and 1888. The natural rate of increase of Massachusetts is therefore very low as compared with European countries. The birth rate of Massachusetts has been very gradually increasing since 1879; and for the first time since 1875 has it passed above 26 in the 1000. An interesting analysis is made showing that the birth rate is by far the largest in cities having over 10,000 inhabitants, where it is from 27 to

30 per 1000, while in the 96 towns with an individual population of less than 1000 the rate was less than 16. There was but little change in 1889 in the ratio of males to females. The excess of children born of foreign parents over those born of native parentage was greater than in any year since the beginning of registration. The number of plural births was considerably greater than in any previous year; while the number of illegitimates was less than in the immediately preceding year, although 1.8 per 1000 of births greater than the average of twenty years, 1870–89.

The average age at marriage of all bridegrooms was 29.1 years, and of men marrying for the first time, 26.9 years. The ages for women were 25.8 and 24.5 respectively. The increase in the age of brides is more marked than that of bridegrooms.

An analysis is made of the relation of the death rate to density of population, which shows that there was a difference of 2.7 per 1000 in 1889 in favor of the rural counties. Compared with the number of those *living* at different periods the death rates for the same age periods were as follows: —

Under 1 year,	211.5	per 1000.
" 5 "	63.8	"
20–30 "	8.4	"
All others,	16.2	"

Twenty-one persons are reported to have lived 100 years or more, all of whom were white; and 15 were foreign born. The public health on the whole was above the average. But little change in the causes of death is noted. The total number of violent deaths is not increasing, while suicide claims a larger number in this class. The death rate from pulmonary consumption has decreased from 34.3 per 10,000 in 1870 to 27.7 in 1889; from dropsy, from 17.9 to 3.8. On the other hand, there has been an increase in the rate from brain disease from 14.35 to nearly 20; from cancer, from 3.5 to 6.1; from kidney disease, from 10.5 to 30.1; from heart disease, from 6.60 to 15.08. As a critic notes, "a great part of these changes come from diagnosis and improved registration; but still the figures are, to an extent, significant both of the change in the character of our population and in the habits of living."

Statistics of divorce are included, of which an abstract will be given hereafter.

Twelfth Annual Report of the State Board of Health of Rhode Island for the Year 1889, and including the Report upon the Registration of Births, Marriages, and Deaths in 1888. Providence. 1890.

This is one of the best state registration reports in the United States, as the system of registration is thorough and complete. The report might be made more valuable by the addition of a summary table, showing in one table the birth, death, and marriage rate per 1000 for a series of years. The death rate since 1860 is given satisfactorily on page 121, annually and with averages for five-year periods; the marriage rate is given on page 101 with no five-year averages included; while the birth rate on page 78 is calculated as "of population one birth in every;" and the return does not go back of 1869. We have none too many reliable bureaus of vital statistics, and those that we have should take pains to give us in every issue all the wealth they have. While there are advantages in calculating the birth rate as done in this report, for purposes of comparison much time will be saved to the student of such phenomena by furnishing the other. If the report were not generally so good and complete, this suggestion would not be prompted, as vital statistics of any sort are by no means abundant in this country.

There is little change in the birth rate of Rhode Island. In 1869 there was one birth to every 41.4 of population; in 1888, one to every 41.1. Between 1870 and 1878 there was a gain, but since the latter date it has fluctuated around 41. Several tables and analyses show that for Rhode Island at least the season of the year does not have any considerable influence in the causation of birth. There has been a constant increase in the number of children of foreign parentage. In the five years 1858–62, the percentage of births of American parentage was 48.50; in 1888 it was but 38.62. It is shown that there are more foreign mothers married to American fathers than American-born mothers intermarrying with fathers of foreign parentage. It is somewhat surprising to note that the number of mothers who have ten or more children, though small, has, nevertheless, increased since 1883. There is no table of illegitimate births for a series of years.

The marriage rate increased but little in the period 1883–88. There was an increase of about one year in the average age of the males who were married during the ten years 1879–88 over the average

age of the males married in the previous decade; while the average age of brides increased about one and one-half years.

The death rate, as reported, is increasing. For different periods it is as follows: —

	Per 1000.		Per 1000.
1860–1864, ...	16.5	1885, ...	17.7
1865–1869, ...	16.5	1886, ...	18.8
1870–1874, ...	17.2	1887, ...	19.9
1875–1879, ...	16.6	1888, ...	20.4
1880–1884, ...	18.0		

There is an interesting table showing the average age of all decedents. This, it will be noticed, has increased.

	Average Age.		Average Age.
1860–1864, ...	29.71	1875–1879, ...	31.29
1865–1869, ...	31.58	1880–1884, ...	33 24
1870–1874, ...	30.30	1885–1888, ...	33.75

The average age of females is from two to four years greater than that of males in the several years. This report has separate calculations of the vital statistics of colored persons.

Twenty-second Annual Report of Births, Marriages, and Deaths in Michigan for the Year ending 1888. Lansing. 1890. Pp. viii, 260.

A great defect in the basis of this report is the incomplete registration of births, marriages, and deaths, and the necessity for correcting the first returns by such additions as may be afterwards obtained. For example, the number of births in 1885, as originally returned, were 42,119; this estimate has since been increased by corrections to 58,026. It appears that from 70 to 80 per cent of what is estimated as the true number of births is returned. The same degree of discrepancy exists in other years, and in the returns of marriages and deaths. In spite of this fundamental uncertainty, which the Secretary of State frankly states, various tables and elaborate calculations are made which do credit to the spirit and will of the office, even if certain data cannot be dealt with.

The birth rate for 1888 is calculated at 26.5 per 1000. As in Massachusetts, the largest proportion of births took place in the last six months of the year. The number of children born of native-born parents was 44.01 per cent of the whole number. The number of illegitimate births increased in the period 1885–88, which is attri-

buted, however, to a more complete registration. According to the returns, 12.07 in every 1000 births in 1888 were illegitimate.

The marriage rate was 9.3 marriages to 1000 of the population, which probably indicates a fair degree of completeness of registration. The average age of the bridegrooms was 29.20 and of the brides 24.43. This is about one year increase on the average age for the previous ten years. The number of deaths exceeded that of any other year, but this did not signify "an unsatisfactory state of public health but a more perfect registration in some parts of the state, and more especially in Detroit." The author of the report admits that, on account of the imperfections in the registration, it is impossible to form a correct idea of the death rate of the state. There are some other suggestive statistics showing the comparative healthfulness of different pursuits.

Fourth Annual Report of the State Board of Health of Ohio for the Year ending October 31, 1889. Columbus. 1889. Pp. 350.

There is but little comprehensive collection of vital statistics in Ohio. It is stated that through the local boards of health a system of weekly reports of preventable diseases is being completed, and it is hoped that by another year comparatively accurate statistics of the prevalence of such diseases among urban populations may be furnished. The weekly reports of correspondents of the more fatal diseases of childhood include the practice of about two per cent of the physicians of the entire state. The monthly health bulletins are reprinted; and a considerable amount of meteorological statistics is appended. From the summary of the mortality statistics it is computed that in the towns reporting, representing a population of 1,197,840, the death rate was 14.16 per 1000.

Fourth Annual Report of the State Board of Health and Vital Statistics of Pennsylvania. Harrisburgh. 1889. Pp. 1200.

The statistical parts of this report embrace statements of Boards of Health of Scranton, Philadelphia, and Erie. There are marriage statistics and meteorological tables for the whole state. Pennsylvania has but lately taken up the work of registration. At present only registration of marriages and physicians is provided for by law. The return of marriages, however, is so incomplete that, as the report says, "nothing more than a few partial deductions can be made from it." No state record is yet made of births and deaths.

Eleventh Biennial Report of the State Board of Health of California for the two years ending June 30, 1890. Sacramento. 1890. Pp. 284.

The registration law of California is very imperfect. Births are not returned or recorded except in a very few instances. It is calculated that returns of mortality are received for nearly two-thirds of the state, and upon that basis the death rate is estimated at about 15 per 1000. Statistics of deaths as far as reported are tabulated, and illustrate the distribution of disease and its character. There is an interesting statistical paper on *Leprosy*, by the President of the Board of Health.

Fifth Annual Report of the State Board of Health of Maine for 1889. Augusta. 1890. Pp. xvi, 304.

The Secretary deplores the fact that any statistics that can be presented for Maine in regard to the health of the state are of very slight value. The suggestion is therefore made that the legislature enact a law for the registration of vital statistics.

The Secretary of the North Carolina Board of Health, in the *Bulletin* for February, states that the board is still unsuccessful in gathering statistics. In their last report all that they were able to report was the number of deaths, with causes, in only ten or twelve towns, and even in these towns there were only a few from which the reports were received every month during the two years. A continued attempt will be made by appealing to the mayors.

Medical Education, Medical Colleges, and the Regulation and Practice of Medicine in the United States and Canada. 1765–1891. By John H. Rauch, M.D., Secretary Illinois State Board of Health. Springfield. 1891. Pp. 222.

This is the Seventh Report of Medical Education made by the Illinois Board of Health, the first appearing in 1880. This issue also includes a valuable summary in regard to medical education in foreign countries. The work is statistical in its character, and annually grows in completeness and accuracy. There are now 135 medical colleges in the United States and 13 in Canada. An object of the report is to indicate the development of the practice of requiring education qualifications for matriculation. The statistics show a marked increase in the standard. Of 1183 graduates from various medical colleges of the United States who have been examined by the state boards of Alabama, Minnesota, New Jersey, North Carolina, South Carolina,

and Virginia, 285, or 24 per cent, have been rejected. The total number of graduates and the percentages of graduates to matriculates, from 1880 to 1890, was as follows: —

Year.	Number of Graduates.	Percentage to Matriculate.
1881	3,985	32.7
1882	4,571	35.8
1883	4,215	33.0
1884	4,091	32.8
1885	3,824	33.2
1886	4,043	33.8
1887	3,835	30.6
1888	4,142	30.3
1889	4,543	31.0
1890	4,853	30.1

A Manual of Public Health. By H. Wynter Blyth. London. 1890. Pp. 23, 653.

The first section of this work, pp. 1–44, deals with vital statistics. Its scope is indicated by the following topics: method of calculating population between the census periods by logarithms; calculation of birth and death rates; age distribution; mean age at death; mean duration of life; probable duration of life; construction of life tables; aids to calculations, such as tables, Fuller's spiral rule, and the arithmometer. It is exceedingly practical in its treatment.

DAVIS R. DEWEY.

The Minister of Commerce and Industry of France has recently asked of the Conseil Supérieur de Statistique advice upon the compilation of tables of morbidity for different professions. At the same time the Commission Supérieur des Sociétés de Secours Mutuels, feeling the need for these tables, instituted an inquiry into the best means of obtaining them. Commissioned to make a report on this subject, M. Jacques Bertillon has made a special study of the principal tables of morbidity now existing, and has just given the results of this study in a recent article in the November number of the *Revue d'Hygiene.*

M. Bertillon first states that the statistics of morbidity give most varying results, due to the differences in ideas as to what constitutes a malady. Some do not count mild diseases of a few days' duration, while others omit chronic maladies, so-called.

The only statistics which are comparable are the military tables, for here the definition of sickness for a soldier (incapacity for service) must necessarily be the same in all countries.

According to Bertillon's tables there are in all the armies of Europe each day from 40 to 50 patients per 1000 men. Each soldier has, on an average, 16 or 17 days in the year when he is incapable of doing work. In spite of the difference in rules there is a remarkable agreement between the armies of the different countries, because here the conditions remain invariably the same when the term sickness is given. In spite of the difficulty of arriving at any general conclusions upon this subject, M. Bertillon has been able to make the two following points: —

1st. That morbidity and the death rate are less in the country than in the small cities, and less in the latter than in the large cities.

2nd. That adult women are more liable to sickness than men.

This last conclusion results clearly from observations made among the Lyonnaise work people, in a community where the women are very numerous; and also in Italian communities. He sums it up by saying that, up to the age of forty-five or thereabouts, the number of sick women is equal to one and a half times that of the sick men. Above this age the difference diminishes little by little.

G. N. C.

STATISTICAL YEAR-BOOK OF URUGUAY.

Anuario Estadístico de la República Oriental del Uruguay 1889. Montevideo. 1890. Pp. lxxvii, 727.

This is a yearly publication containing valuable information. It is divided into fourteen chapters, with an introductory note addressed to the Secretary of the Treasury, and an appendix on the immigration laws. The subjects treated in these fourteen chapters are: 1, Territory, historical and geographical sketches, climatology, and meteorology; 2, Population, immigration, birth, and mortality, accompanied by statistical tables; 3, Foreign trade; 4, Home trade; 5, Navigation; 6, Treasury; 7, Public wealth; 8, Stock exchange, prices of staple products, banks, and insurance companies; 9, Public education; 10, Public charities, hospitals, and asylums; 11, Justice, prisons, and police; 12, Railways; 13, Post-office, telegraph, and telephone; 14, Legislation, administration, and other data.

The total population of the country is 683,943. This estimate, however, is not obtained by a regular census, but by means of rough calculation. The tables show there has been a continuous increase from 1879 to 1889, attaining its maximum in the latter year, when the rate of increase over 1879 was 56 per cent. Of the 683,943 inhabitants 222.049 live at Montevideo. The density of the population for the whole country is 3.66 per square kilometer.

In 1879 the total trade of Uruguay amounted to 62,777,970 pesos. Of this 36,823,863 was due to importation, and the remaining 25,954.107 to exportation. England and France contribute most to the Uruguayan trade. The United States imported from Uruguay in the same year 5.55 per cent, and exported to her 9.26 per cent.

The national revenue of the financial year, 1888–89, was 15,690,293 pesos, showing an increase of 2,022,197 pesos over the previous year. Of this increase 998,449 was caused by custom duties.

The total public debt of the Republic amounts to 81.279,752 pesos. The customs revenue amounted to 10,786,602 pesos, or a little more than two-thirds of the total national revenue. Nearly all of this, or 10,362,432 pesos, was collected in the port of Montevideo, where is centred the whole trade.

The tables in the chapter on Public Education show that there were 412 public schools in 1889, 32 more than in the preceding year. Besides these there is a University, a Military School, and a School of Arts and Manual Training. The University is attended by 692 students. Besides the public schools there are 402 private schools attended by 21,017 students.

There are 756 kilometers of railway already built, 801 in construction, and 2130 in project. There are 4038 kilometers of telegraphic lines, 316 of cable, and 2700 miles of telephone.

The number of births for the year 1889 was 7860. Of the legitimates 3523 were male and 3483 female. The illegitimates were 854,— males 459 and females 395. The number of births, 7860, shows an increase of 781 over the year 1888.

The data on marriages are valuable in showing the influence of the foreign element in Uruguay. There were 3072 marriages in 1889. Of the contracting parties the bridegrooms numbered 476 Uruguayans and 1060 foreigners, while the brides numbered 775 Uruguayan and 761 foreign. Of the foreign nationalities, those most represented were Italians, 494 males and 317 females; Spaniards, 366 males and

280 females; French, 80 males and 71 females; and Argentines, 39 males and 51 females. Of the 1536 females who contracted marriage, 253 in 1889, and 218 in 1888, were below 18 years of age. But the favorite maritable age for the female appears to be between 20 and 25. For the bridegrooms between 25 and 30 years is the favorite period.

There were, in 1889, 5061 deaths, thus distributed: 3327 Uruguayans, 1731 foreigners, and 3 of unknown nationality. The diseases which caused greatest mortality were: consumption, 978; diseases of digestive organs (liver, etc.), 773; of circulatory organs (heart, etc.), 527; of respiratory organs (pneumonia, etc.), 433; tetanus and convulsions, 401; and cerebral and spinal diseases, 350. The climate of Uruguay is not subject to epidemics. Among ascertained causes of violent deaths there are 35 homicides, 5 suicides in 1888 and none in 1889; drowning, 45; fractures, 33; and poisoning, 12.

The report is thorough, attractive in appearance, and throughout is illustrated with valuable tables of graphic statistics. It also contains a fine collection of photogravures of the President and his Cabinet, and of the principal buildings and streets of Montevideo; and an excellent map of the country showing the railway, telegraph, and cable lines.

R. R. DE CARVALHO.

REPORT OF THE COMPTROLLER OF THE CURRENCY.

Annual Report of the Comptroller of the Currency, December 1, 1890. Edward S. Lacey, Comptroller. Washington. 1890. Pp. 307.

In addition to the topics regularly considered in the report of the Comptroller of the Currency the present issue treats of two subjects of special interest,— the nature and volume of substitutes employed for money, and, secondly, the character of domestic exchanges. A successful attempt has once more been made to ascertain the extent of the use made of substitutes for money in banking operations in the United States. This is in line with two similar returns, one in 1871, confined, however, to only 52 banks, and the other in 1881. In 1871 the 52 typical banks were ordered to analyze all their receipts for six consecutive days, and from this it was determined that 12 per cent of the receipts were in cash (coin, greenbacks, bank notes, or coupons),

and 88 per cent in checks, drafts, and commercial bills. The returns for September 17, 1881, and September 17, 1890, are presented in the following table: —

United States.	Sept. 17, 1881. 2132 Banks.		Sept. 17, 1890. 3474 Banks.	
		Per cent.		*Per cent.*
Gold Coin	$4,078,044	1.38	$3,702,772	1.13
Silver Coin	500,302	.17	1,399,991	.43
Paper Currency	12,881,571	4.36	24,210,463	7.40
Checks, Drafts, etc,	277,773,862	94.09	297,965,025	91.04

The Comptroller presents similar tables for New York City alone, the other reserve cities and the towns inside the reserve cities, and discusses the possible causes which have led to a decrease in the use of checks and drafts as compared with 1881. It should be added that in both years another day, June 30, in addition to September 17, was taken, but the returns are quite similar for the two dates in each year.

The statistics showing the amount of drafts drawn by the national banks in each reserve city, and in each state outside the reserve cities, upon New York, Chicago, St. Louis, and other reserve cities, and all other banks, are the first which have ever been published. Out of $11,550,898,255, drawn by all banks during the year ended June 30, 1890, $7,284,982,634, or 63 per cent, was drawn upon New York. In addition to the drafts drawn by national banks, other drafts are estimated as follows: —

3229 national banks (official)	$11,550,898,255
109 " " (estimated)	287,334,573
3878 state banks, private, etc. (estimated)	6,089,291,932
Total, ...	$17,927,524,760

A table is also presented showing the amount of premium charged on each $100 for each state. The average rate was 8½ cents.

MUNICIPAL FINANCE.

Third Annual Report of the Executive Committee of the Citizens Association of Boston. 1891. Pp. 80.

Contains a considerable amount of data and statistics in regard to expenditures of the Boston municipal government, compared in many

instances with other cities. There is a suggestive treatment of the necessity of consolidating different departments, of revising the city charter, proper regulation and control of electric wires, and of the need of reforming the present form of department reports. Criticism upon the last point is sharp and intelligent. The Report notes the confusion in accounts that is caused by "the multiplicity of independent departments, the difference between the municipal and financial year, and the unsatisfactory method in which the books of the several departments are made up."

"Such a condition of things is in marked contrast to the reports issued by similar departments in other cities. In Philadelphia, for instance, the report issued by the Bureau of Highways, under charge of the Director of Public Works, is filled with the most minute, satisfactory, and clear statements in regard to the amount and variety of each class of work done by the department, the exact cost of that work determined by the square feet of surface, cubic capacity, or running length in feet or miles. The prices paid for all materials are stated so they can be understood; the prices are given at which contract work has been done, and any citizen who can read can tell in three minutes, by an examination of their report, how much money the department has spent, what it has been spent for in detail, and just how much was accomplished by that expenditure; how the amount of work for each year compares with the work and expenditures of previous years; the total mileage of streets; the total amount of each kind of pavement in the whole city each year; and other facts not only of interest but of importance as enabling the citizens who desire to know, and possibly to criticize the actions of their public servants, to do so with a full and accurate knowledge of the official acts of the departments."

Bulletin Annuel des Finances des Grandes Villes. Dixième Année: 1886. By Joseph Körösi. Budapest. 1890. Pp. 93.

In September, 1889 (Vol. I, p. 336), of the *Publications*, a notice is given of the eighth issue of this annual series. At that time there was a possibility that the series would be discontinued, but all students of municipal finance will be glad to see this additional issue. Mr. Körösi, however, announces that this is the last which will appear under his direction. Hereafter the Statistics of Finance will be under the direction of Prof. J. Jahnson, Director of Municipal Statistics at

St. Petersburg, and the Mortality Statistics under Dr. J. Bertillon, Chief of the Statistical Bureau of Paris. The former of these will probably not be issued as frequently as hitherto. To Mr. Körösi, for his laborious pioneer work, is due great credit and the thanks of all investigators and students in this field. The following tables are given: Receipts of municipalities; extraordinary receipts, expenses; direct and indirect taxes; expenses of police; cleaning streets; lighting; fire departments; schools; public charity; streets; constructing new streets; interest on and funding the debt, and pensions. In every case the per capita computation is given. In addition, totals are given with notes and remarks.

PRICE STATISTICS.

In its issue of Jan. 3 1891, the *London Economist* exhibits the movement in the price of commodities and compares the "index number" in December of successive years. The figures are: —

December,	1885,	2023
"	1886,	2059
"	1887,	2230
"	1888,	2187
"	1889,	2248
"	1890,	2241

The general level of price therefore is seen to be but slightly lower at the close of the year than at the beginning. There is a decline in prices of raw material for textile manufactures, and a rise in the prices of food products, including tea and coffee.

In a statistical pamphlet entitled *Our Commercial Barometer for the year 1890* (Imperial Federation League. London. 1891. Pp. 44), Sir Rawson W. Rawson, after analyzing the commercial changes, month by month, for Great Britain, discusses the value of the calculation of average prices drawn from the tonnage of vessels entering and clearing with cargoes, and the total value of imports and exports. He also submits a table showing the fluctuation of prices by an index number since 1881. His method differs from that of Mr. Sauerbeck in embracing in his estimate a far larger number of commodities. Mr. Sauerbeck derives his index numbers from the average prices of 45

principal commodities. The comparison of the two series of index numbers is seen in the following table: —

Years.	Sauerbeck.	Rawson.	Sauerbeck.	Rawson.
1867-77	100	100	Annual Increase or Decrease.	
1881	85	83	....	....
1882	84	81	—1	—2
1883	82	78	—2	—3
1884	76	76	—6	—2
1885	72	69	—4	—7
1886	69	68	—3	—1
1887	68	68	—1	Nil
1888	70	69	+2	+1
1889	72	71	+2	+2
1890	72	71	Nil	Nil

MINOR NOTICES.

Three Papers read before the Australasian Association for the Advancement of Science. By Henry Heyleyn Hayter, Government Statist of Victoria. Melbourne. 1890. Pp. 37.

The subjects of these papers are Official Statistics (1888); The Coming Towns (1890); and Our Meat Supply (1890). In Mr. Hayter's opinion, no more than five days should ever be allowed to the taking of a census; nor should more than five years elapse between two censuses. After a discussion of the nature of the different schedules, criticism is made of the returns of the state revenue and expenditure. In Australia it appears that "refunds, drawbacks, advances to be recouped and recoups of such advances are mixed up with the statements, so that both revenue and expenditure appear to be much larger than they really are." A protest is entered against all such cross entries. It is also asserted that the customs returns of imports are considerably overstated. It appears to be difficult to ascertain the actual rate of interest Australia is paying for borrowed money. Criticism is offered of the emigration statistics, as well as of the registration of births.

Upon the subject of *Meat Supply* the author opposes the view that there is any danger of a lack in the supply of meat. Mr. Coghlan,

the Government Statist of New South Wales, had recently published some calculations to show that the demand for beef would probably overtake the supply in six years. This, Mr. Hayter regards as unwarranted,— Mr. Coghlan's error arising from assuming a too large rate of increase of the population. Mr. Hayter indeed believes that it is impossible to place any limit on the quantity of live stock that Australia may ultimately be able to carry.

Report on the Beef Supply of the United States, and the Export Trade in Animals and Meat Products. By Dr. D. E. Salmon. United States Department of Agriculture. 1890. Pp. 15.

It is difficult to make a census of large cattle, but in 1888 a special effort was made to obtain reliable data from the western states. The statistics given as a result of this inquiry are regarded as the most accurate yet presented. From them the author calculates that cattle as to every 1000 of the population throughout the United States have numbered as follows: —

1850	767	1884	787
1860	815	1885	800
1870	618	1886	794
1880	738	1887	783
1881	744	1888	771
1882	758	1889	758
1883	773		

The decrease since 1885 is in a measure to be accounted for by overestimating the population which was estimated at 65,172,000 in 1889. Tables also show the number of milch cows; price of hogs and steers in Chicago, and statistics of the export trade.

Abandoned Farms in Massachusetts. (From the *Twenty-first Annual Report of the Massachusetts Bureau of Statistics of Labor.*) By Horace G. Wadlin. Boston. 1891. Pp. 177–258.

Since the recent interest manifested in the question of "abandoned farms" in several of the New England states, this is the most systematic and complete attempt to get at the facts of the problem. The returns are given for the entire state, excepting the cities and six towns, and were made by the assessors of the towns in 1889–90. "By abandoned farms are meant those formerly cultivated but now deserted, upon which cultivation is now abandoned, and the buildings, if any, unoccupied and permitted to fall into decay. In some cases the grass is still cut, but nothing is done in the way of enrichment of the soil."

Answering such a description, there are 1461 farms with an acreage of 126,509, valued at $1,076,328. A considerable part of this value is represented by buildings. The proportion of land abandoned to the acreage of all farms is 3.45 per cent, while the value is but 1.15 per cent of the value of all farm land. The average size of the abandoned farms with buildings is 86 acres, and of those without buildings is 87. With this desertion of land it is shown that there has been no falling off in recent years in the aggregate value of agricultural property, or in the value of agricultural products. Of the 144 towns reporting abandoned farms 86 show a decline in population. In some cases the desertion of agricultural land is simply a symptom that the town is in a transition from a purely agricultural to a manufacturing basis. A comparison is made of tax rates in towns with abandoned farms, and the report closes with a discussion of the causes for abandonment.

Shoe and Leather Reporter Annual for 1891. Boston. Pp. 701.

Contains statistics of distribution of shoes from Boston, by which the consumption of shoes in different localities is in a measure indicated; export of leather goods, with detailed statements for each country; imports; hide and skin supply, as well as statistics of prices, etc. It concludes with a full directory of shoe houses.

Maps of the United States showing the Central Station Plants of Electric Railways and System in Operation. Thomson-Houston Electric Company. Boston. 1891. Pp. 110.

Outline maps of each state are given, with symbols located upon them to indicate the nature of the electric plant employed in the several towns where electricity is used. There are two series of maps, one for electric lighting and another for railways. It is stated that the maps have been prepared from data collected from original sources, by a thoroughly disinterested man, whose sole object has been to locate correctly every city or town having a central station. It appears that there are 240 electric railways in the United States, and about 2000 central electric lighting stations. The maps are very clear.

At a recent general convention, at New Orleans, of the National Board af Trade, representing Boards of Trade and kindred Commercial Organizations from the different states, the following resolutions were unanimously adopted: —

Resolved, That the National Board of Trade recommends to Congress the revision of the present census and statistical legislation, and the immediate provision for future enumerations, with a view to better service and greater efficiency.

Resolved, That a committee be appointed to draft a bill and present the same to Congress, contemplating permanence of statistical and enumerating officials and a proper separation of the times in which enumeration of the population required by the Constitution and the collection of general statistical information is made.

At the last meeting of the American Economic Association, held Dec., 1890, at Washington, Mr. Allen R. Foote introduced the following resolutions: —

"*Resolved, first*, That a committee be appointed to designate the division of accounts, and the items to be included in each, that should be kept by corporations performing quasi-public services.

"*Resolved, second*, That said divisions be so made that the effect of each essential economic factor will be shown, to the end that correct statistics may be obtained through a uniform method of accounting, as a basis for intelligent economic discussion and legislation."

These resolutions were introduced with the view of securing a more satisfactory basis for the discussion of the question of municipal ownership of electric and gas-lighting plants.